Control Sheet

Issue date	Revision number	Reason	Pages affected
08.15.2005	00	New release (FM4683)	All pages
11.10.2005	01	Corrections (FM4750)	All pages

CR-IR 357 Service Manual

Preventive Maintenance (PM)

1. Preventive Maintenance Program

1.1 How To Use the Preventive Maintenance Volume

- Perform the relevant procedures in accordance with the interval notations (1Y 2Y 3Y 4Y 5Y 6Y).
- "Preventive Maintenance Program List" is comprised of programs classified by intervals of one year (1Y), two years (2Y), three years (3Y), four years (4Y), five years (5Y), and six years (6Y). Since the maintenance programs differ depending upon the respective intervals, they should be performed according to the Program List.

1.2 Notations of Intervals

In this volume, either of the following symbols is indicated for each maintenance program. Before initiating any maintenance operation, you should become familiar with the following symbols.

1Y : Indicates a preventive maintenance program that must be performed when the machine has been used for one year or when a process count of about 20,000 is reached.

2Y : Indicates a preventive maintenance program that must be performed when the machine has been used for two years or when a process count of about 40,000 is reached.

3Y : Indicates a preventive maintenance program that must be performed when the machine has been used for three years or when a process count of about 60,000 is reached.

4Y : Indicates a preventive maintenance program that must be performed when the machine has been used for four years or when a process count of about 80,000 is reached.

5Y : Indicates a preventive maintenance program that must be performed when the machine has been used for five years or when a process count of about 100,000 is reached.

6Y : Indicates a preventive maintenance program that must be performed when the machine has been used for six years or when a process count of about 120,000 is reached.

◇ *REFERENCE* ◇

The above process counts are based on a maximum daily process count of 100.

1.3 Preventive Maintenance Program List

◆ *INSTRUCTION* ◆

Safety provided by grounding is assured by properly establishing power cable and additional protective ground wire connections and securing the parts with retaining screws. To maintain safety, ensure that the parts and retaining screws removed for servicing purposes are restored to states existing upon installation. After the parts and retaining screws are restored to the above-mentioned states, follow the procedures set forth in this service manual to verify that the retaining screws are securely tightened to properly secure the parts.

Perform the specified preventive maintenance programs at the predefined intervals or when the predefined process count is reached.
The preventive maintenance programs to be performed at various intervals are listed below.

1.3.1 Maintenance Programs for the First Year

- **Preventive maintenance programs to be performed when the machine has been used for one year or when a process count of about 20,000 is reached (1Y)**

Reference section	Maintenance program	Time requirements	Periodic replacement parts	Remarks
2. Details of Maintenance Procedures				
2.1	Backing Up the Log			
2.2	Checking the Error Log			
2.3	Checking the Erasure Lamp Lighting Time			
3. Checking the Image/Conveyance				
3.1	Check Before Procedures			
3.2	Checking the Image/Conveyance			
3.3	Checking the Output Characters			
4. Pulling Out the Machine				
4.1	Unlocking the Retainers			
4.2	Disconnecting the Cables			
5. Removing the Covers				
5.1	Removing the Covers (1st/5th Year)			
7. Cassette Set Unit				
7.1	Removing the Erasure Unit			
8. Erasure Unit				
8.1	Removing the Filter			
8.2	Cleaning the Filter			
8.4	Reinstalling the Filter			
8.5	Cleaning/Replacing the Brush Roller			
8.6	Reinstalling the Brush Roller Assembly			
8.8	Reinstalling the Reflection Plate			
8.9	Reinstalling the Erasure Unit			
13. Cleaning/Reinstalling the Covers and Louvers				
13.1	Cleaning/Reinstalling the Covers and Louvers (1st/5th Year)			
14.	Cleaning/Replacing the Air Filter			
15. Securing the Machine				
15.1	Connecting the Cables			
15.2	Securing the Machine			
15.3	Checking for Improper Protective Grounding			
16.	Checking the Image/Conveyance			
17.	Confirming the S Value			
18.	Checking the Error Log			

1.3.2 Maintenance Programs for the Second Year

- **Preventive maintenance programs to be performed when the machine has been used for two years or when a process count of about 40,000 is reached (2Y)**

Reference section	Maintenance program	Time requirements	Periodic replacement parts	Remarks
2. Details of Maintenance Procedures				
2.1	Backing Up the Log			
2.2	Checking the Error Log			
2.3	Checking the Erasure Lamp Lighting Time			
3. Checking the Image/Conveyance				
3.1	Check Before Procedures			
3.2	Checking the Image/Conveyance			
3.3	Checking the Output Characters			
4. Pulling Out the Machine				
4.1	Unlocking the Retainers			
4.2	Disconnecting the Cables			
5. Removing the Covers				
5.2	Removing the Covers (2nd/4th/6th Year)			
6.	Turning OFF the High-Voltage Switch			
7. Cassette Set Unit				
7.1	Removing the Erasure Unit			
7.2	Removing the Cassette Set Unit			
7.3	Preparation for Cleaning of Suction Cups			
7.4	Cleaning the Suction Cups (Left-Hand)			
7.5	Cleaning the Suction Cups (Right-Hand)			
7.6	Cleaning the Rubber Rollers (Small)			
7.7	Cleaning the Rubber Rollers			
7.8	Installing the Components			
7.9	Cleaning the Antistatic Member and Shutter			
7.12	Cleaning inside the Machine and the Antistatic Member			
7.13	Reinstalling the Cassette Set Unit			
7.14	Cleaning the Dust-Tight Cover Assembly			
8. Erasure Unit				
8.1	Removing the Filter			
8.3	Replacing the Filter		Filter	
8.4	Reinstalling the Filter			
8.5	Cleaning/Replacing the Brush Roller		Brush rollers (x2)	
8.6	Reinstalling the Brush Roller Assembly			
8.7	Cleaning the Reflection Plate			
8.8	Reinstalling the Reflection Plate			
8.9	Reinstalling the Erasure Unit			
9. Side-Positioning Conveyor Unit				
9.1	Removing the Side-Positioning Conveyor Unit			
9.2	Cleaning the Guide			
9.3	Cleaning the Rubber Rollers			
9.4	Cleaning the Shock-Absorbing Rollers, Antistatic Members, and Guide			
10. Subscanning Unit				
10.1	Removing the Post-Reading Conveyor Guide Assembly			
10.2	Removing the Light-Collecting Guide			
10.3	Removing the Scanning Optics Unit			
10.4	Removing the Subscanning Unit			
10.5	Cleaning the Guides, Center Rollers, and Rubber Rollers			
10.6	Cleaning the Flywheel (Large) and Kapton® Belt			
10.7	Cleaning the Flywheel (Small) and Rubber Belt			
10.8	Cleaning Inside the Machine			
10.9	Reinstalling the Subscanning Unit			
10.10	Reinstalling the Scanning Optics Unit			
11. Light-Collecting Guide				
11.1	Cleaning and Reinstalling the Light-Collecting Guide			

Reference section		Maintenance program	Time requirements	Periodic replacement parts	Remarks
	11.2	Cleaning the Post-Reading Conveyor Guide Assembly			
	11.3	Reinstalling the Post-Reading Conveyor Guide Assembly			
	11.4	Reinstalling the Side-Positioning Conveyor Unit			
12.		Turning ON the High-Voltage Switch			
13. Cleaning/Reinstalling the Covers and Louvers					
	13.2	Cleaning/Reinstalling the Covers and Louvers (2nd/4th/6th Year)			
14.		Cleaning/Replacing the Air Filter		Air filter	
15. Securing the Machine					
	15.1	Connecting the Cables			
	15.2	Securing the Machine			
	15.3	Checking for Improper Protective Grounding			
16.		Checking the Image/Conveyance			
17.		Confirming the S Value			
18.		Checking the Error Log			

- **Parts to be replaced when the machine has been used for two years or when a process count of about 40,000 is reached**

Reference section	Parts Name	Parts No.	Qty.	Remarks
8.3	Filter	603Y0070*	1	
8.5	Brush roller	334N5027*	2	
14.	Air filter	376N0240*	1	

1.3.3 Maintenance Programs for the Third Year

- **Preventive maintenance programs to be performed when the machine has been used for three years or when a process count of about 60,000 is reached (3Y)**

Reference section	Maintenance program	Time requirements	Periodic replacement parts	Remarks
2. Details of Maintenance Procedures				
2.1	Backing Up the Log			
2.2	Checking the Error Log			
2.3	Checking the Erasure Lamp Lighting Time			
3.Checking the Image/Conveyance				
3.1	Check Before Procedures			
3.2	Checking the Image/Conveyance			
3.3	Checking the Output Characters			
4. Pulling Out the Machine				
4.1	Unlocking the Retainers			
4.2	Disconnecting the Cables			
5. Removing the Covers				
5.3	Removing the Covers (3rd Year)			
7. Cassette Set Unit				
7.1	Removing the Erasure Unit			
7.15	Replacing the IP Suction Pump		IP suction pump	
8. Erasure Unit				
8.1	Removing the Filter			
8.2	Cleaning the Filter			
8.4	Reinstalling the Filter			
8.5	Cleaning/Replacing the Brush Roller			
8.6	Reinstalling the Brush Roller Assembly			
8.8	Reinstalling the Reflection Plate			
8.9	Reinstalling the Erasure Unit			
13. Cleaning/Reinstalling the Covers and Louvers				
13.3	Cleaning/Reinstalling the Covers and Louvers (3rd Year)			
14.	Cleaning/Replacing the Air Filter			
15.Securing the Machine				
15.1	Connecting the Cables			
15.2	Securing the Machine			
15.3	Checking for Improper Protective Grounding			
16.	Checking the Image/Conveyance			
17.	Confirming the S Value			
18.	Checking the Error Log			

- **Parts to be replaced when the machine has been used for three years or when a process count of about 60,000 is reached**

Reference section	Parts Name	Parts No.	Qty.	Remarks
7.15	IP suction pump	133Y2034*	1	

1.3.4 Maintenance Programs for the Fourth Year

- **Preventive maintenance programs to be performed when the machine has been used for four years or when a process count of about 80,000 is reached (4Y)**

Reference section	Maintenance program	Time requirements	Periodic replacement parts	Remarks
2. Details of Maintenance Procedures				
2.1	Backing Up the Log			
2.2	Checking the Error Log			
2.3	Checking the Erasure Lamp Lighting Time			
3. Checking the Image/Conveyance				
3.1	Check Before Procedures			
3.2	Checking the Image/Conveyance			
3.3	Checking the Output Characters			
4. Pulling Out the Machine				
4.1	Unlocking the Retainers			
4.2	Disconnecting the Cables			
5. Removing the Covers				
5.2	Removing the Covers (2nd/4th/6th Year)			
6.	Turning OFF the High-Voltage Switch			
7. Cassette Set Unit				
7.1	Removing the Erasure Unit			
7.2	Removing the Cassette Set Unit			
7.3	Preparation for Cleaning of Suction Cups			
7.4	Cleaning the Suction Cups (Left-Hand)			
7.5	Cleaning the Suction Cups (Right-Hand)			
7.6	Cleaning the Rubber Rollers (Small)			
7.7	Cleaning the Rubber Rollers			
7.8	Installing the Components			
7.9	Cleaning the Antistatic Member and Shutter			
7.10	Replacing the Dumper (Opposite Reference Side)		Dumper (opposite reference side)	
7.11	Replacing the Dumper (Reference Side)		Dumper (reference side)	
7.12	Cleaning inside the Machine and the Antistatic Member			
7.13	Reinstalling the Cassette Set Unit			
7.14	Cleaning the Dust-Tight Cover Assembly			
8. Erasure Unit				
8.1	Removing the Filter			
8.3	Replacing the Filter		Filter	
8.4	Reinstalling the Filter			
8.5	Cleaning/Replacing the Brush Roller		Brush rollers (x2)	
8.6	Reinstalling the Brush Roller Assembly			
8.7	Cleaning the Reflection Plate			
8.8	Reinstalling the Reflection Plate			
8.9	Reinstalling the Erasure Unit			
9. Side-Positioning Conveyor Unit				
9.1	Removing the Side-Positioning Conveyor Unit			
9.2	Cleaning the Guide			
9.3	Cleaning the Rubber Rollers			
9.4	Cleaning the Shock-Absorbing Rollers, Antistatic Members, and Guide			
10. Subscanning Unit				
10.1	Removing the Post-Reading Conveyor Guide Assembly			
10.2	Removing the Light-Collecting Guide			
10.3	Removing the Scanning Optics Unit			
10.4	Removing the Subscanning Unit			
10.5	Cleaning the Guides, Center Rollers, and Rubber Rollers			
10.6	Cleaning the Flywheel (Large) and Kapton® Belt			
10.7	Cleaning the Flywheel (Small) and Rubber Belt			
10.8	Cleaning Inside the Machine			
10.9	Reinstalling the Subscanning Unit			
10.10	Reinstalling the Scanning Optics Unit			

Reference section	Maintenance program	Time requirements	Periodic replacement parts	Remarks
11. Light-Collecting Guide				
11.1	Cleaning and Reinstalling the Light-Collecting Guide			
11.2	Cleaning the Post-Reading Conveyor Guide Assembly			
11.3	Reinstalling the Post-Reading Conveyor Guide Assembly			
11.4	Reinstalling the Side-Positioning Conveyor Unit			
12.	Turning ON the High-Voltage Switch			
13. Cleaning/Reinstalling the Covers and Louvers				
13.2	Cleaning/Reinstalling the Covers and Louvers (2nd/4th/6th Year)			
14.	Cleaning/Replacing the Air Filter		Air filter	
15. Securing the Machine				
15.1	Connecting the Cables			
15.2	Securing the Machine			
15.3	Checking for Improper Protective Grounding			
16.	Checking the Image/Conveyance			
17.	Confirming the S Value			
18.	Checking the Error Log			

- **Parts to be replaced when the machine has been used for four years or when a process count of about 80,000 is reached**

Reference section	Parts Name	Parts No.	Qty.	Remarks
7.10	Dumper (opposite reference side)	386N1304*	1	
7.11	Dumper (reference side)	386N1303*	1	
8.3	Filter	603Y0070*	1	
8.5	Brush roller	334N5027*	2	
14.	Air filter	376N0240*	1	

1.3.5 Maintenance Programs for the Fifth Year

- **Preventive maintenance programs to be performed when the machine has been used for five years or when a process count of about 100,000 is reached (5Y)**

Reference section	Maintenance program	Time requirements	Periodic replacement parts	Remarks
2. Details of Maintenance Procedures				
2.1	Backing Up the Log			
2.2	Checking the Error Log			
2.3	Checking the Erasure Lamp Lighting Time			
3. Checking the Image/Conveyance				
3.1	Check Before Procedures			
3.2	Checking the Image/Conveyance			
3.3	Checking the Output Characters			
4. Pulling Out the Machine				
4.1	Unlocking the Retainers			
4.2	Disconnecting the Cables			
5. Removing the Covers				
5.1	Removing the Covers (1st/5th Year)			
7. Cassette Set Unit				
7.1	Removing the Erasure Unit			
8. Erasure Unit				
8.1	Removing the Filter			
8.2	Cleaning the Filter			
8.4	Reinstalling the Filter			
8.5	Cleaning/Replacing the Brush Roller			
8.6	Reinstalling the Brush Roller Assembly			
8.8	Reinstalling the Reflection Plate			
8.9	Reinstalling the Erasure Unit			
13. Cleaning/Reinstalling the Covers and Louvers				
13.1	Cleaning/Reinstalling the Covers and Louvers (1st/5th Year)			
14.	Cleaning/Replacing the Air Filter			
15. Securing the Machine				
15.1	Connecting the Cables			
15.2	Securing the Machine			
15.3	Checking for Improper Protective Grounding			
16.	Checking the Image/Conveyance			
17.	Confirming the S Value			
18.	Checking the Error Log			

1.3.6 Maintenance Programs for the Sixth Year

- **Preventive maintenance programs to be performed when the machine has been used for six years or when a process count of about 120,000 is reached (6Y)**

Reference section	Maintenance program	Time requirements	Periodic replacement parts	Remarks
2. Details of Maintenance Procedures				
2.1	Backing Up the Log			
2.2	Checking the Error Log			
2.3	Checking the Erasure Lamp Lighting Time			
3. Checking the Image/Conveyance				
3.1	Check Before Procedures			
3.2	Checking the Image/Conveyance			
3.3	Checking the Output Characters			
4. Pulling Out the Machine				
4.1	Unlocking the Retainers			
4.2	Disconnecting the Cables			
5. Removing the Covers				
5.2	Removing the Covers (2nd/4th/6th Year)			
6.	Turning OFF the High-Voltage Switch			
7. Cassette Set Unit				
7.1	Removing the Erasure Unit			
7.2	Removing the Cassette Set Unit			
7.3	Preparation for Cleaning of Suction Cups			
7.4	Cleaning the Suction Cups (Left-Hand)			
7.5	Cleaning the Suction Cups (Right-Hand)			
7.6	Cleaning the Rubber Rollers (Small)			
7.7	Cleaning the Rubber Rollers			
7.8	Installing the Components			
7.9	Cleaning the Antistatic Member and Shutter			
7.12	Cleaning inside the Machine and the Antistatic Member			
7.13	Reinstalling the Cassette Set Unit			
7.14	Cleaning the Dust-Tight Cover Assembly			
7.15	Replacing the IP Suction Pump		IP suction pump	
8. Erasure Unit				
8.1	Removing the Filter			
8.3	Replacing the Filter		Filter	
8.4	Reinstalling the Filter			
8.5	Cleaning/Replacing the Brush Roller		Brush rollers (x2)	
8.6	Reinstalling the Brush Roller Assembly			
8.7	Cleaning the Reflection Plate			
8.8	Reinstalling the Reflection Plate			
8.9	Reinstalling the Erasure Unit			
9. Side-Positioning Conveyor Unit				
9.1	Removing the Side-Positioning Conveyor Unit			
9.2	Cleaning the Guide			
9.3	Cleaning the Rubber Rollers			
9.4	Cleaning the Shock-Absorbing Rollers, Antistatic Members, and Guide			
10. Subscanning Unit				
10.1	Removing the Post-Reading Conveyor Guide Assembly			
10.2	Removing the Light-Collecting Guide			
10.3	Removing the Scanning Optics Unit			
10.4	Removing the Subscanning Unit			
10.5	Cleaning the Guides, Center Rollers, and Rubber Rollers			
10.6	Cleaning the Flywheel (Large) and Kapton® Belt			
10.7	Cleaning the Flywheel (Small) and Rubber Belt			
10.8	Cleaning Inside the Machine			
10.9	Reinstalling the Subscanning Unit			
10.10	Reinstalling the Scanning Optics Unit			
11. Light-Collecting Guide				
11.1	Cleaning and Reinstalling the Light-Collecting Guide			

Reference section		Maintenance program	Time requirements	Periodic replacement parts	Remarks
	11.2	Cleaning the Post-Reading Conveyor Guide Assembly			
	11.3	Reinstalling the Post-Reading Conveyor Guide Assembly			
	11.4	Reinstalling the Side-Positioning Conveyor Unit			
12.		Turning ON the High-Voltage Switch			
13. Cleaning/Reinstalling the Covers and Louvers					
	13.2	Cleaning/Reinstalling the Covers and Louvers (2nd/4th/6th Year)			
14.		Cleaning/Replacing the Air Filter		Air filter	
15. Securing the Machine					
	15.1	Connecting the Cables			
	15.2	Securing the Machine			
	15.3	Checking for Improper Protective Grounding			
16.		Checking the Image/Conveyance			
17.		Confirming the S Value			
18.		Checking the Error Log			

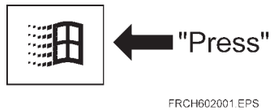
- **Parts to be replaced when the machine has been used for six years or when a process count of about 120,000 is reached**

Reference section	Parts Name	Parts No.	Qty.	Remarks
7.15	IP suction pump	133Y2034*	1	
8.3	Filter	603Y0070*	1	
8.5	Brush roller	334N5027*	2	
14.	Air filter	376N0240*	1	

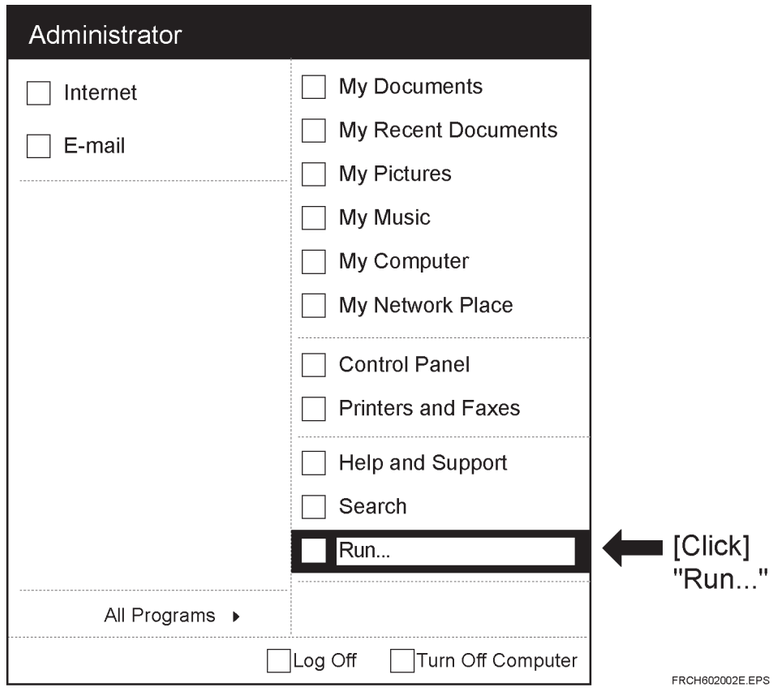
2. Details of Maintenance Procedures

2.1 Backing Up the Log

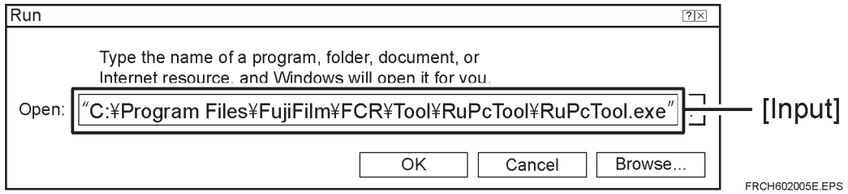
1. **Power ON the CR Console.**
2. **Power ON the RU.**
3. **Press the [Windows] key to display the Start menu of Windows.**



4. **Click [Run...] from the Start menu of Windows.**

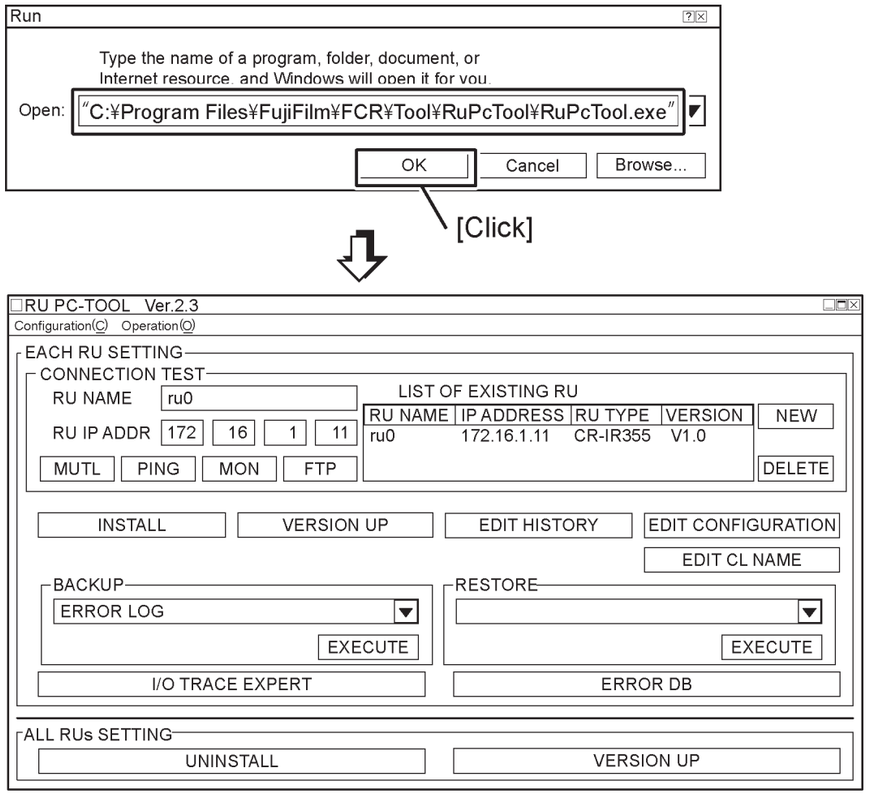


5. **Input "C:\Program Files\FujiFilm\FCR\Tool\PuPcTool\RuPcTool.exe" in "Name".**

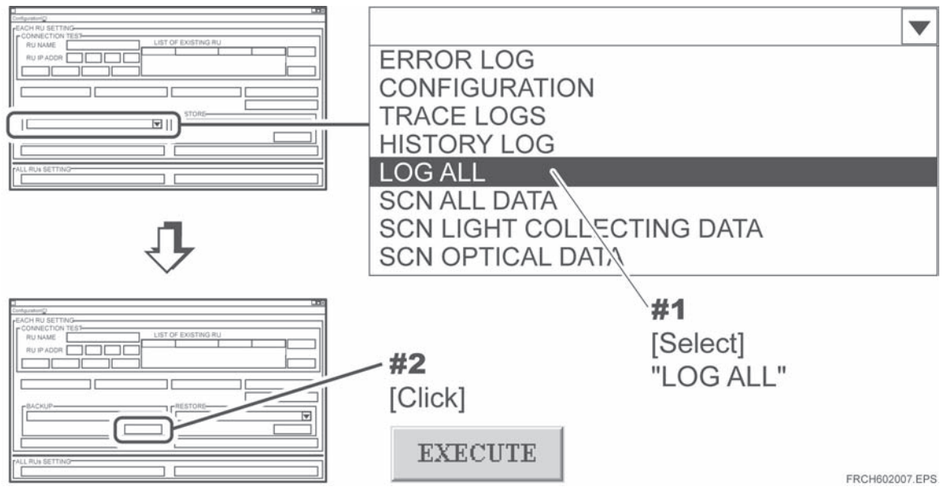


6. **Click on [OK].**

→ The RU PC-TOOL window opens.



***7*. Select “LOG-ALL” from the BACKUP items, and click on [EXECUTE].**

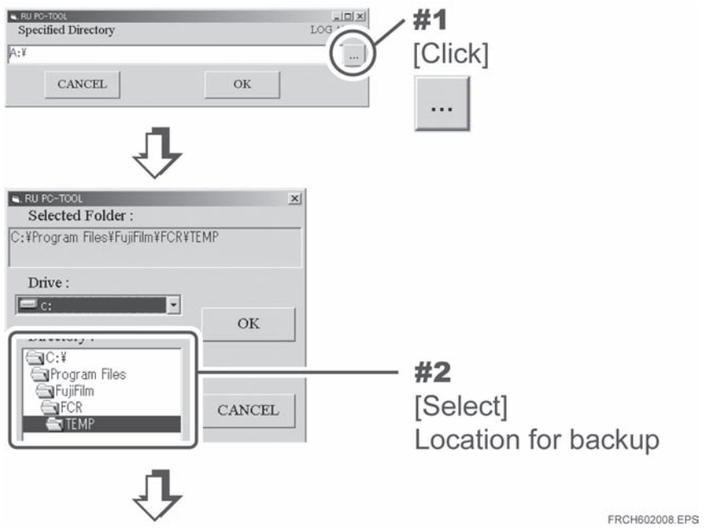


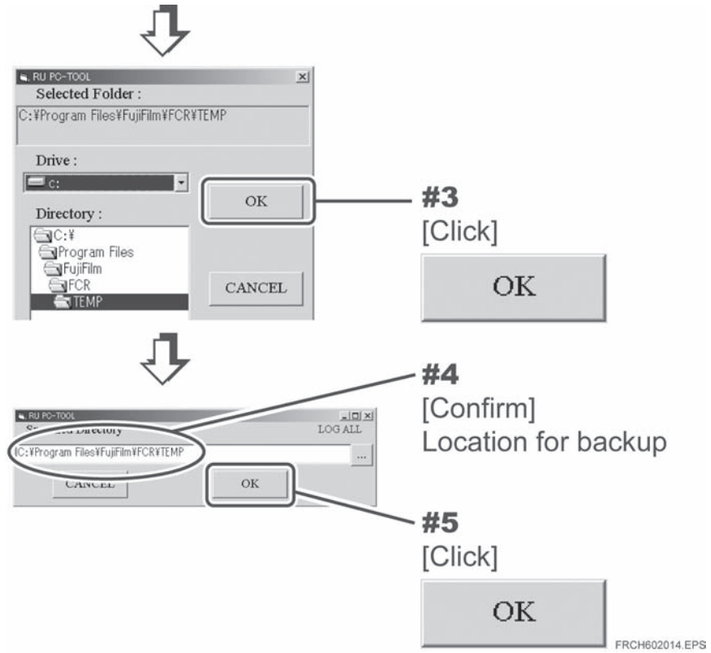
→ The window for selecting the location for backing up the data appears.

***8*. Click on [...] and select the location (drive and directory) where the data is to be backed up. After making the selection, click on [OK]. Confirm the location for backing up the data, and then click on [OK].**

◆ *NOTE* ◆

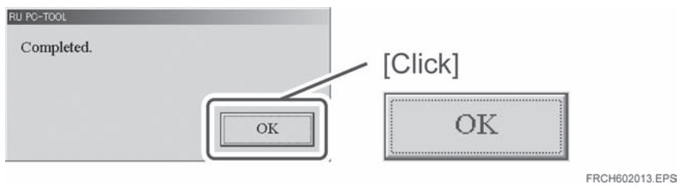
When the data is to be backed up on an FD, set a formatted FD into the CR Console FD drive before selecting the location for backup. If you click on [OK] without setting the FD, the error window appears.





→ The Completed window appears after backup is completed.

***9*. Click on [OK].**



→ The display returns to the RU PC-TOOL window.

2.2 Checking the Error Log

***1*. Click on [ERROR DB].**

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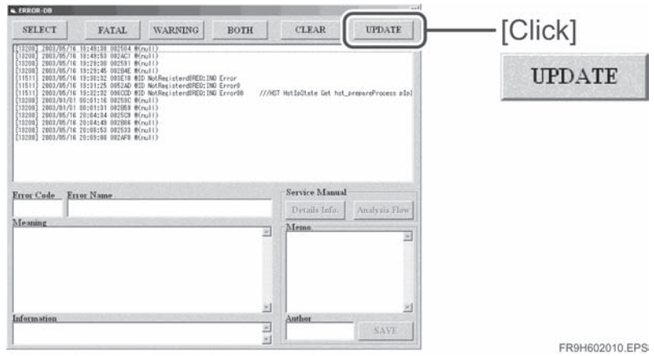
→ The ERROR-DB window opens.

***2*. Click on [UPDATE].**



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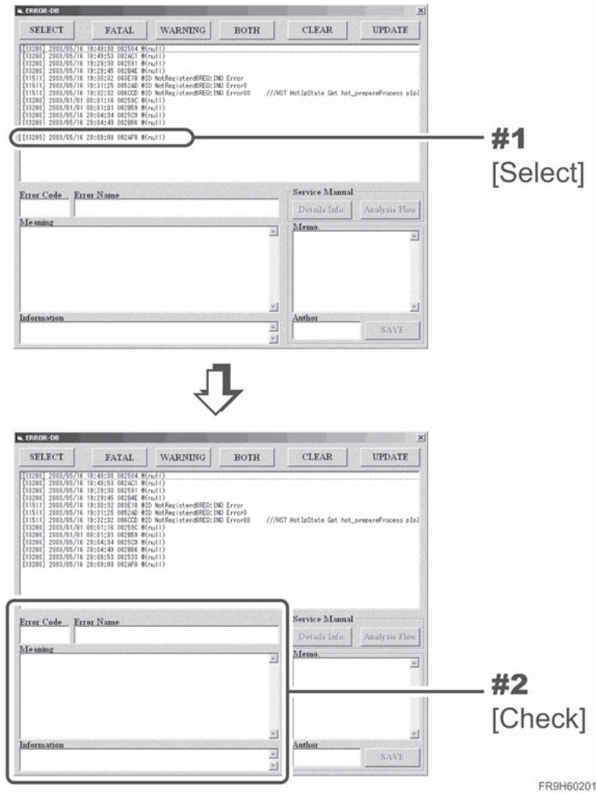
***3*. Select the log, and check to make sure that the error log is not abnormal.**



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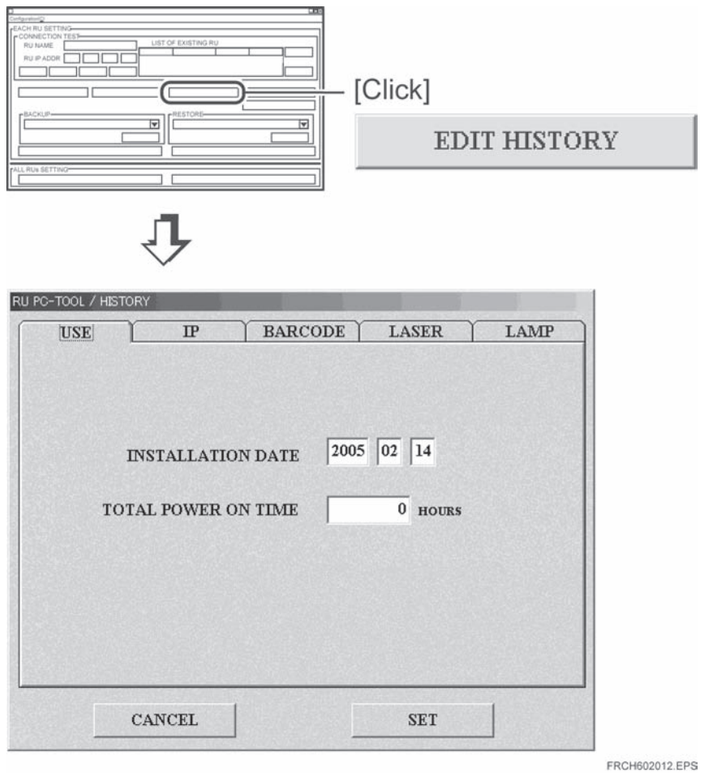
***4*. Click on ✕.**

→ The display returns to the RU PC-TOOL window.

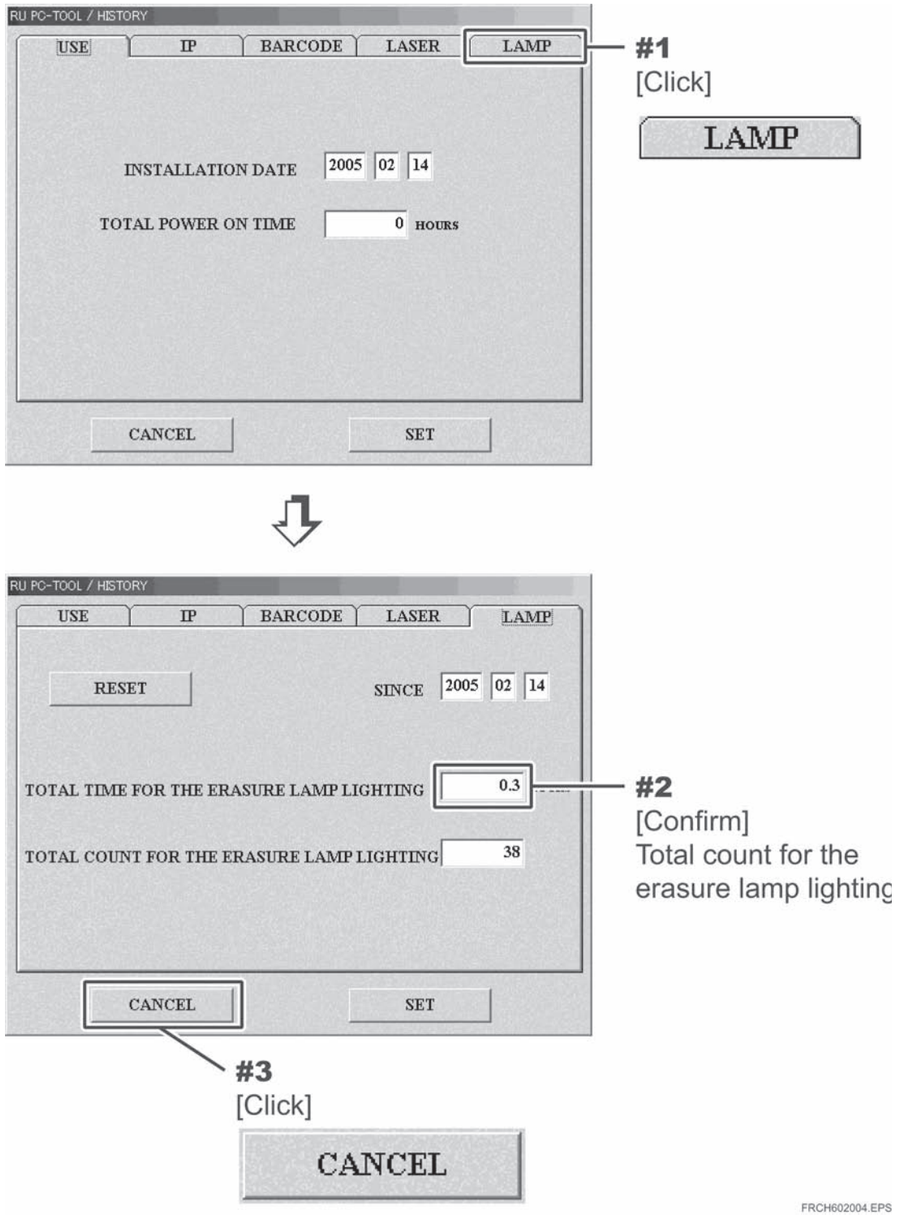
2.3 Checking the Erasure Lamp Lighting Time

1. Click on [EDIT HISTORY].

→ The EDIT HISTORY window opens.



2. Click on the [LAMP] tab, and confirm the total count for the erasure lamp lighting. After the confirmation, click on [CANCEL].



→ The display returns to the RU PC-TOOL window.

3. Checking the Image/Conveyance

The following checks are made in this section.
- Conveyance checks
- Image checks
- Check for output characters

3.1 Check Before Procedures

◆ *NOTES* ◆

- For the IP used for image/conveyance checks, an IP of the maximum size used in the user's site should be employed.
- Make sure that the IP to be used does not contain any important image data exposed.

1. Turn OFF the RU power, and then turn it ON.

2. Make sure that the RU normally starts up, and the operation panel turns to the "READY" window.

3. Perform "Secondary Erasure" on the spontaneous radiation and images accumulated on the IP to be used.

☞ **{Instruction Manual}**

4. Perform IP exposures.

◆ *INSTRUCTIONS* ◆

- Expose two IPs of maximum sizes to be used at the user's site to the following doses.
- With the X-ray tube, the first IP should be exposed in a normal orientation, and the second in a 180-degree upside-down orientation.

- X-ray tube: Tungsten X-ray tube
- Exposure X-ray dose: 1 mR
- Maximum size: IP of 14" x 14" (35 cm x 35 cm) or 14" x 17" (35 cm x 43 cm) size
- Reference conditions: Distance 1.8 m
  Voltage 80 kVp
  Amperage 50 mA
  Time 0.013 sec

3.2 Checking the Image/Conveyance

1. Read the IP, which was exposed as instructed in "3.1 Check Before Procedures," by "TEST", "Image format" or "Image format-2" and "SINGLE", and output it.

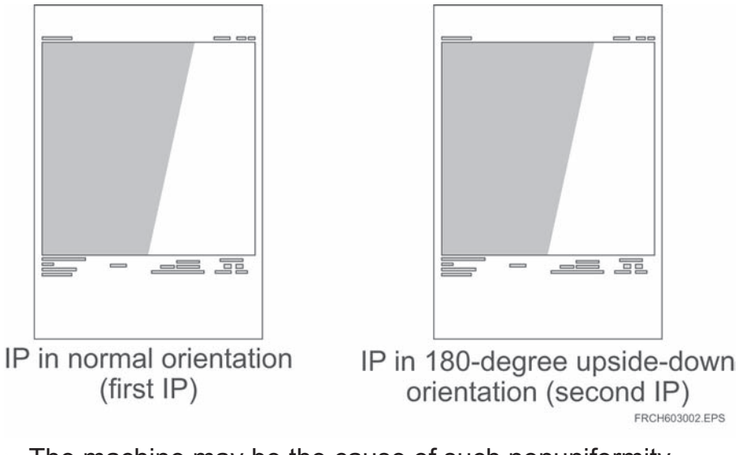
2. Verify that there is no "unusual nonuniformity" found on the output film or on the image displayed on the image monitor.

◆ CHECK ◆

There should be no uneven density difference in the main scan direction.

If there is any uneven density difference, compare the films outputted from the two IPs of the same size, and determine whether such nonuniformity is caused by the machine or X-ray tube.

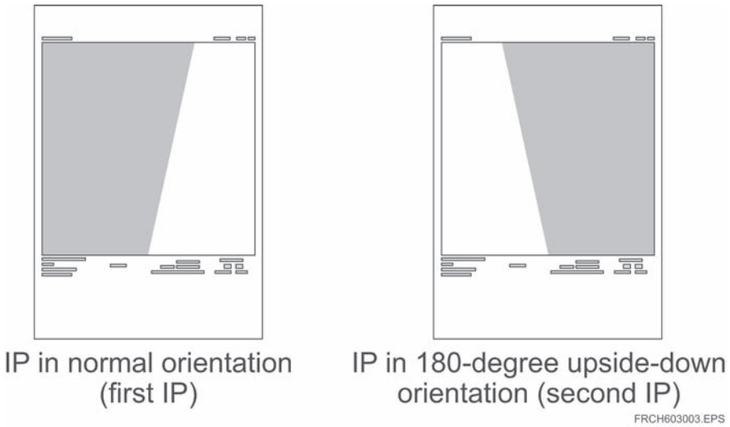
- **If there is uneven density difference in the same direction on two films**



→ The machine may be the cause of such nonuniformity.

☞ **{Troubleshooting}**

- **If positions of uneven density difference are different**



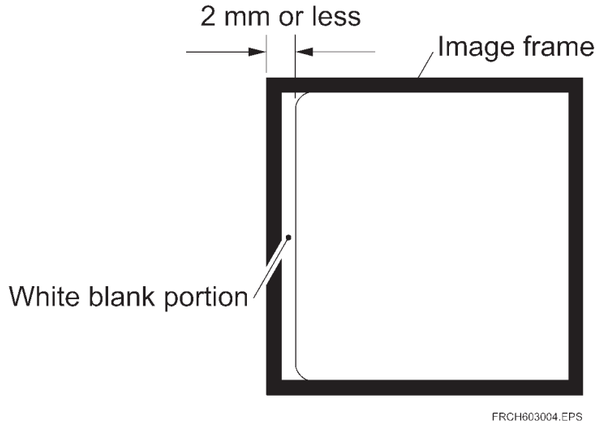
→ The X-ray tube may be the cause of such nonuniformity.

3. Check the image format.

Make sure that the white blank portion is 2 mm or less, as actually measured on the IP, from the outermost edge of the image frame of the film outputted.

◆ CHECK ◆

The white blank portion should be 2 mm or less.
If anything abnormal is found:
☞ ***{Troubleshooting}***



◆ NOTE ◆

The distance measured on the film may differ from the actual size on the IP, depending on the reading size and film size. The actual size on the IP should be calculated using the distance measured on the film and the reduction factor for the film. Compute the actual size on the IP according to the following equation.

$$\text{Actual size on IP} = \text{Measured value} \times \frac{100}{\text{Reduction factor (\%)}}$$

FRCH603005.EPS

3.3 Checking the Output Characters

Make sure that the film character format information that was set in “Outputting the Film for Image Check” is displayed on the output film. Also verify that none of the characters look blurred or broken.

1. Check the output characters.

◆ *INSTRUCTION* ◆

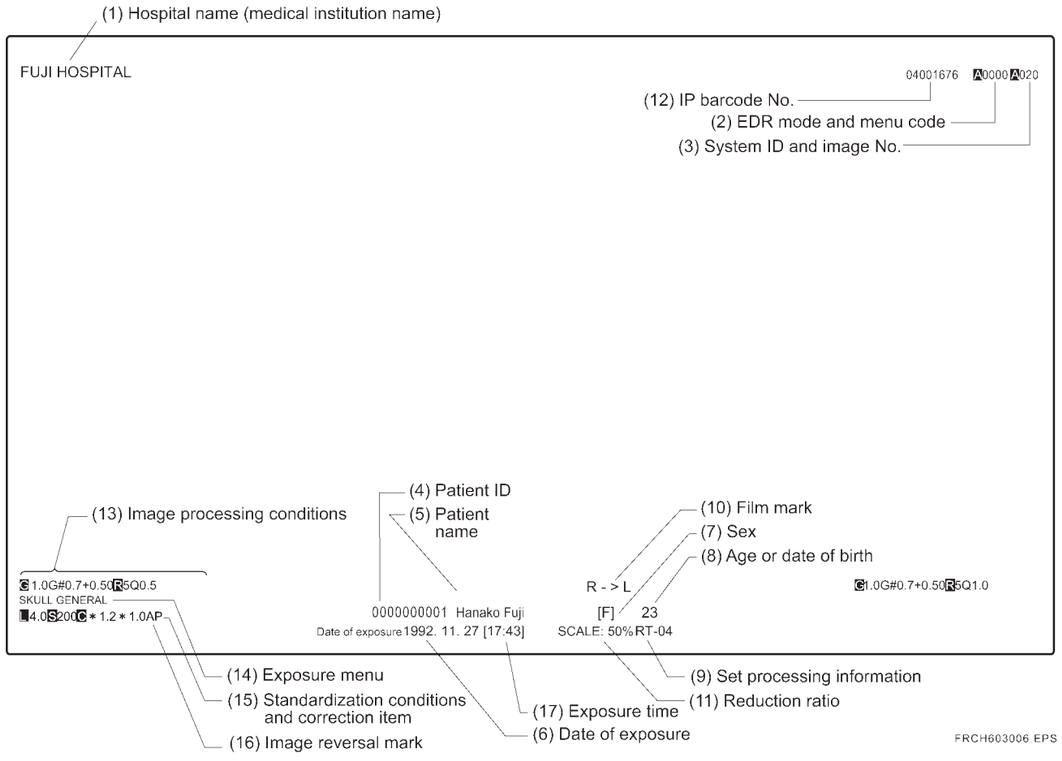
Check the following.
- *The character format information that has been set is correct.*
- *There is nothing abnormal,such as blurred or broken characters.*

If anything abnormal is found:

☞ ***{Troubleshooting}***

◇ *REFERENCE* ◇

The details of output characters and the character display locations are as follows.

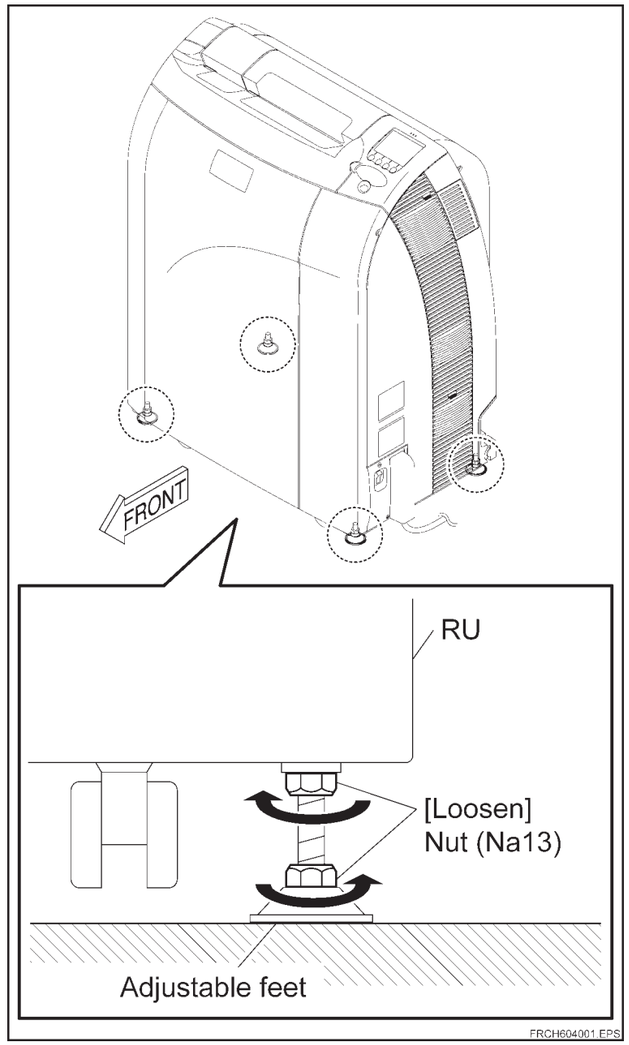


4. Pulling Out the Machine

4.1 Unlocking the Retainers

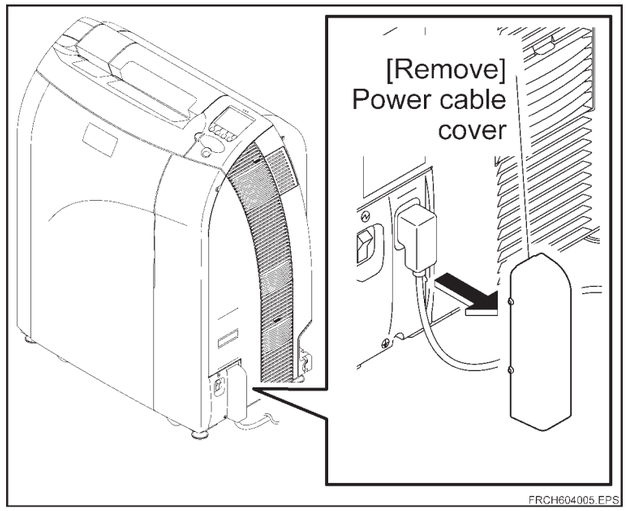
1. **Power OFF the RU.**

2. **Loosen the nuts of the adjustable feet to make the machine movable.**

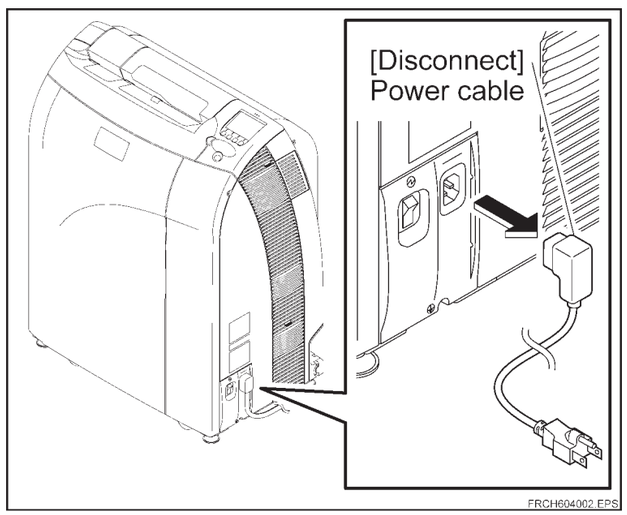


4.2 Disconnecting the Cables

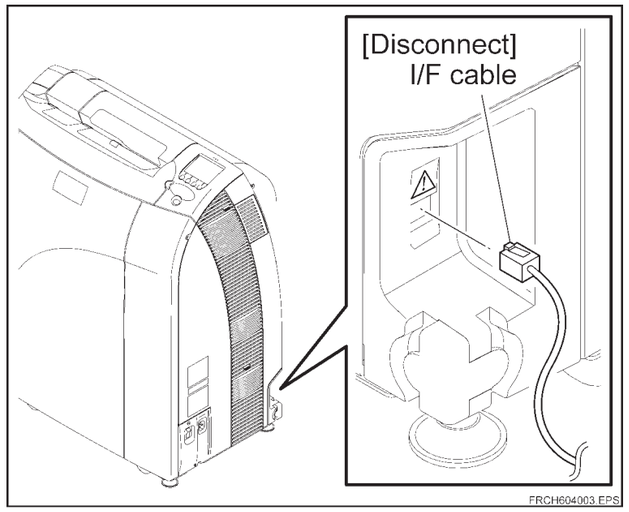
1. **Remove the power cable cover.**



2. **Disconnect the power cable.**



3. **Disconnect the I/F cable.**

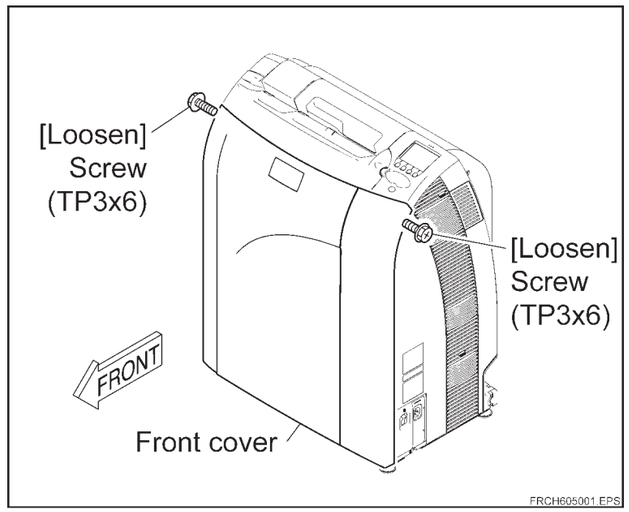


4. **Pull out the machine to the working space.**

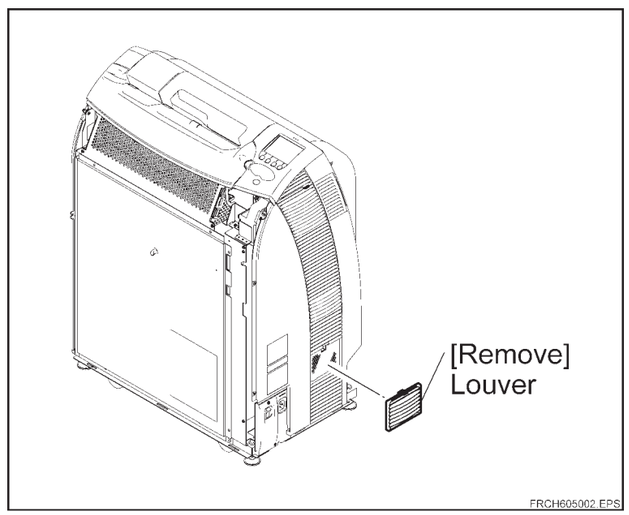
5. Removing the Covers

5.1 Removing the Covers (1st/5th Year)

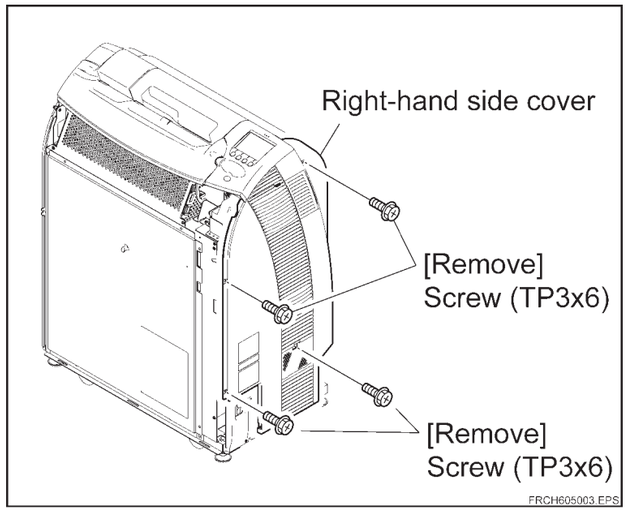
1. **Loosen the screws to remove the front cover.**



2. **Remove the louver.**

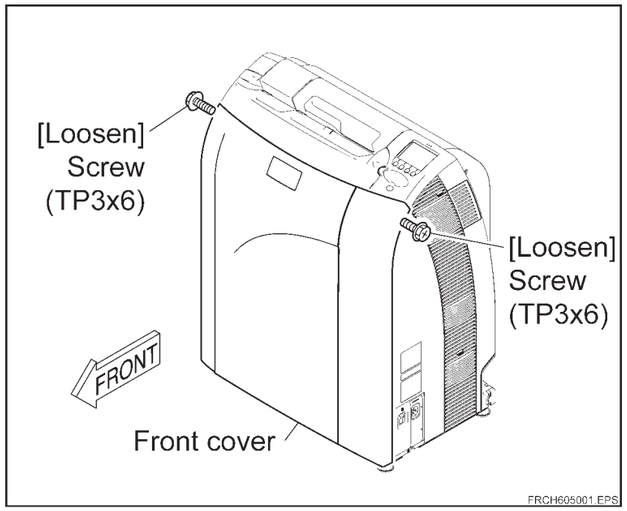


3. **Remove the screws to remove the right-hand side cover.**

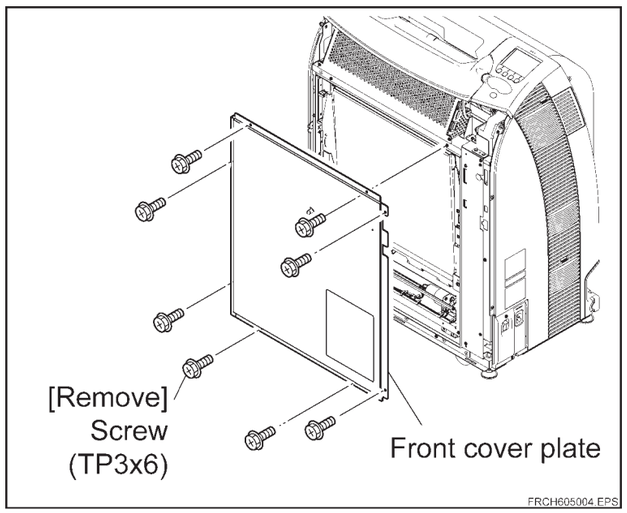


5.2 Removing the Covers (2nd/4th/6th Year)

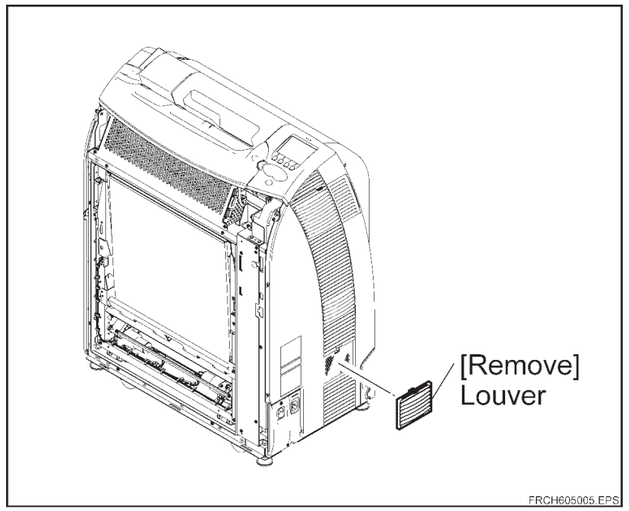
1. **Loosen the screws to remove the front cover.**



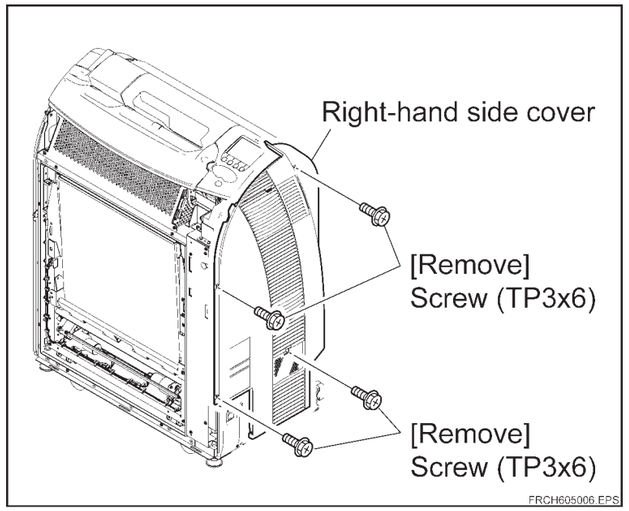
2. **Remove the screws to remove the front cover plate.**



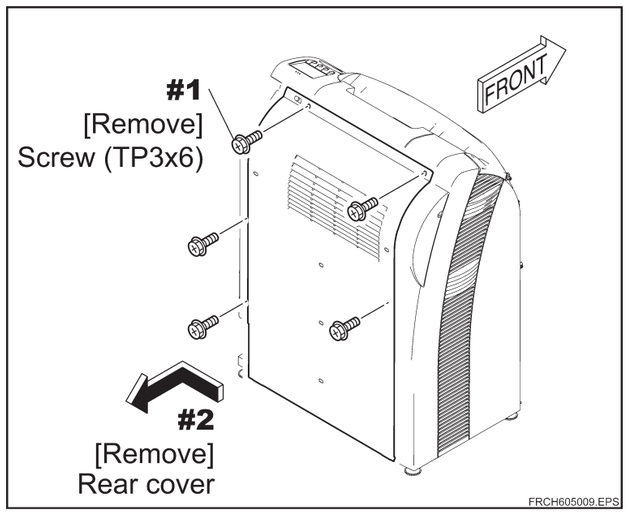
3. **Remove the louver.**



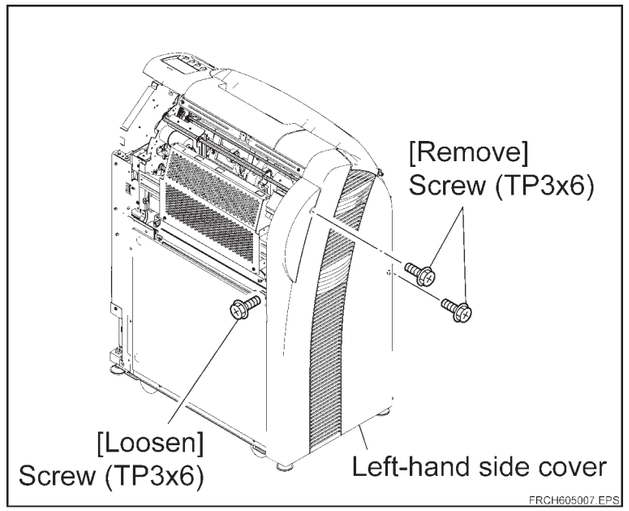
4. **Remove the screws to remove the right-hand side cover.**



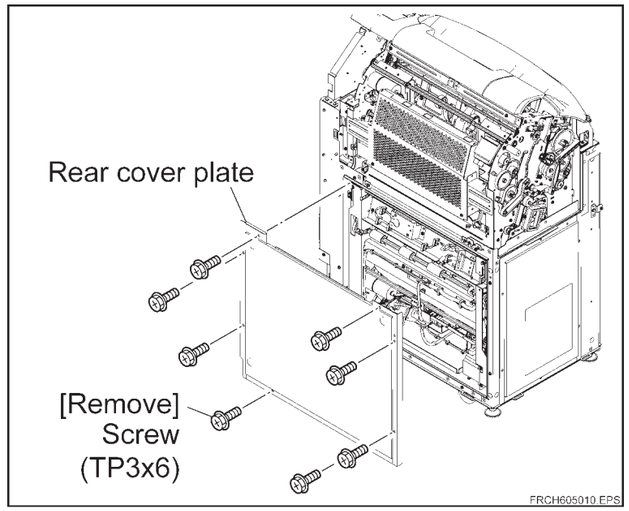
5. **Remove the screws, slightly tilt the rear cover laterally, and pull it out toward you for removal.**



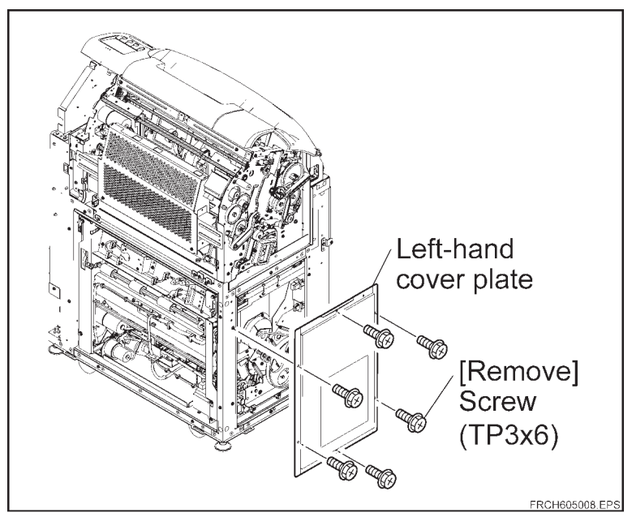
6. **Remove the screws on the left-hand side, loosen the screw on the rear, and remove the left-hand side cover.**



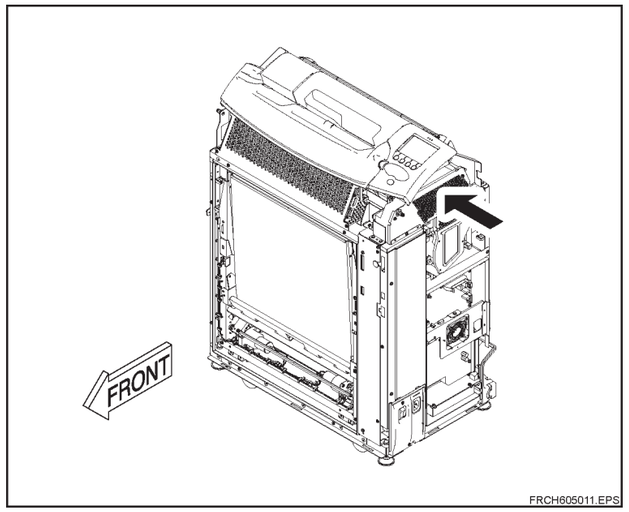
7. **Remove the screws to remove the rear cover plate.**



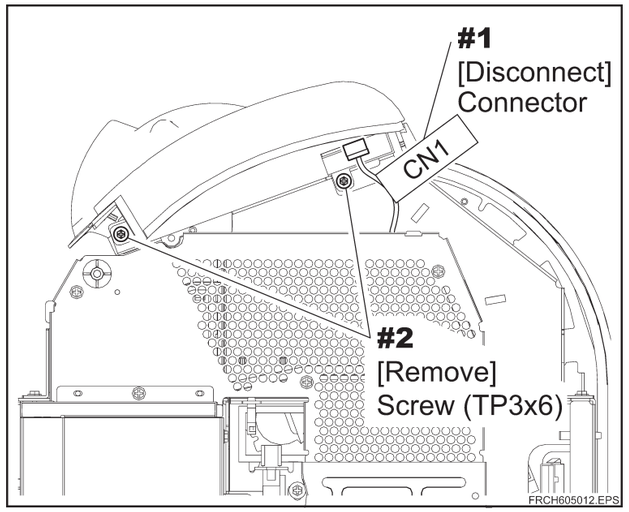
8. **Remove the screws to remove the left-hand cover plate.**



9. **Take the procedure 10 from the direction indicated by the arrow in the figure.**



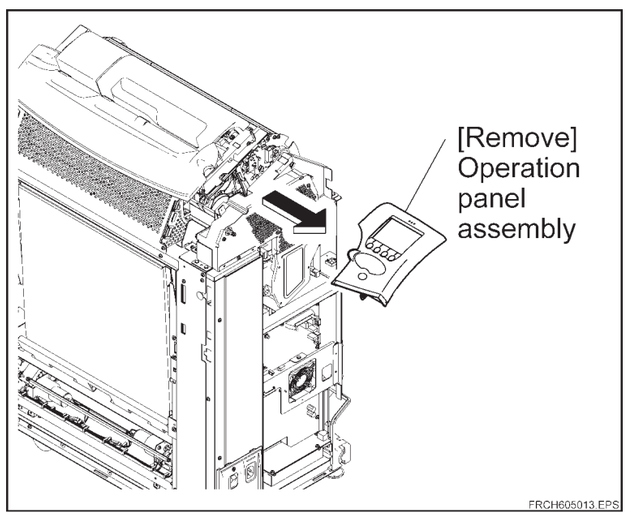
10. **Disconnect the connector, and remove the retaining screws of the operation panel assembly.**



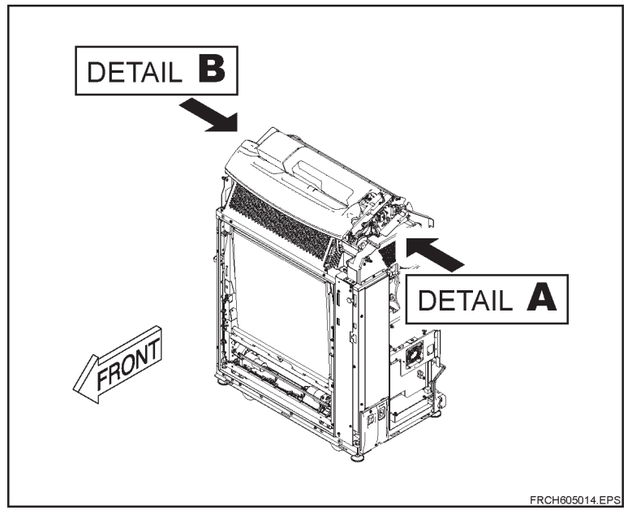
11. **Remove the operation panel assembly.**

◆ ***NOTE*** ◆

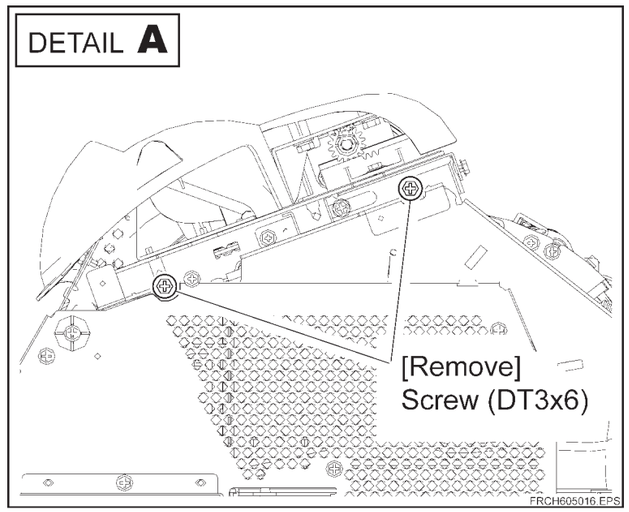
Do not remove the operation panel assembly in the upward direction. Otherwise, part of the machine might get damaged.



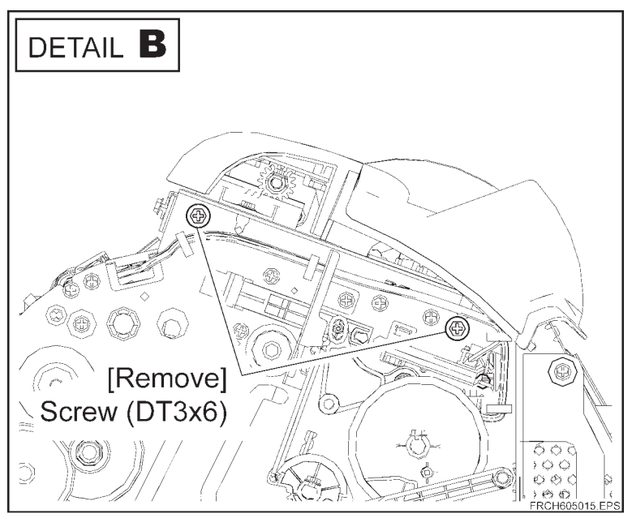
12. **Take the procedures 13 and 14 from the direction indicated by the arrow in the figure.**



13. **Remove the retaining screws of the dust-tight cover assembly from the direction instructed in DETAIL A.**



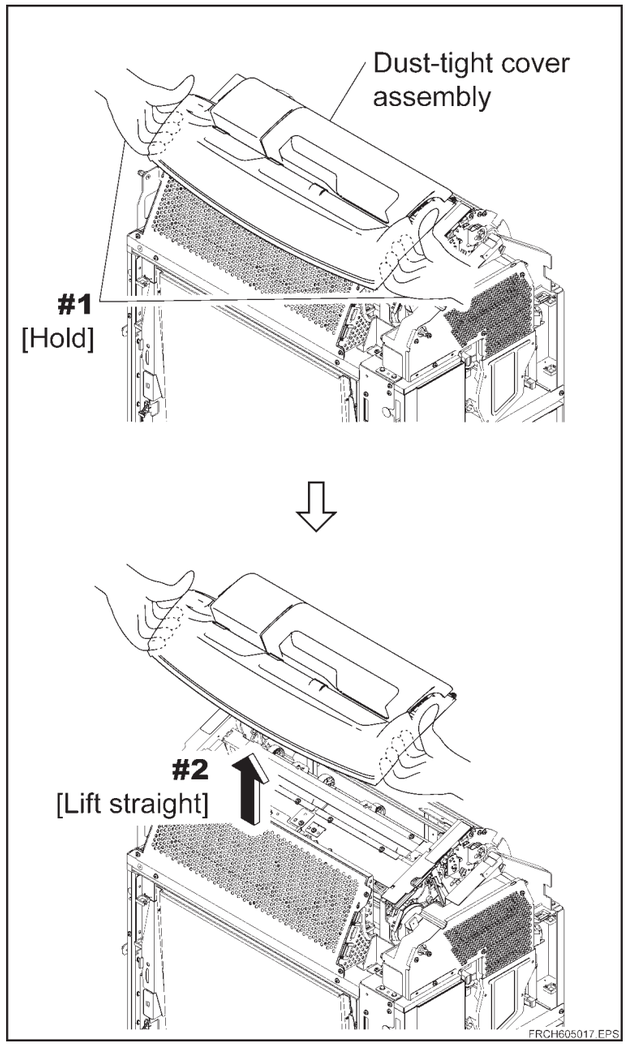
14. **Remove the retaining screws of the dust-tight cover assembly from the direction instructed in DETAIL B.**



15. **Hold the dust-tight cover assembly on the position indicated in the figure, and lift it straight up to remove, while exercising care not to tilt the assembly.**

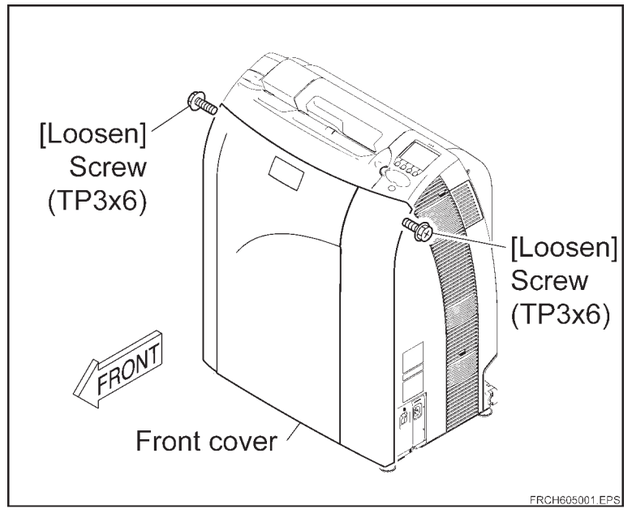
◆ ***NOTE*** ◆

Be sure to lift the dust-tight cover assembly straight without tilting it, to remove it. Otherwise, the sensor or the gear might get damaged.

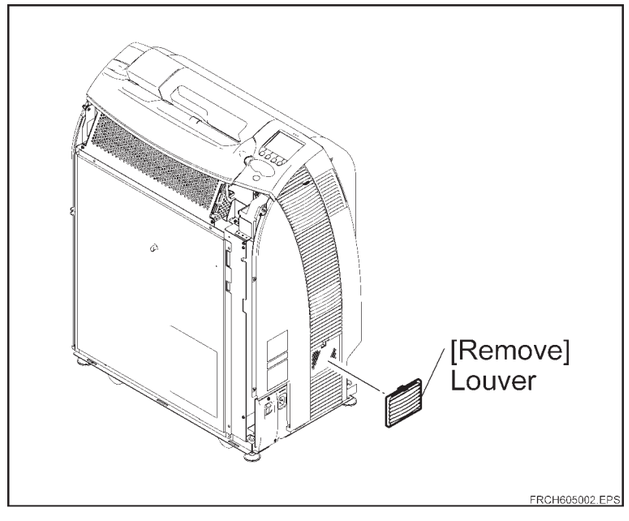


5.3 Removing the Covers (3rd Year)

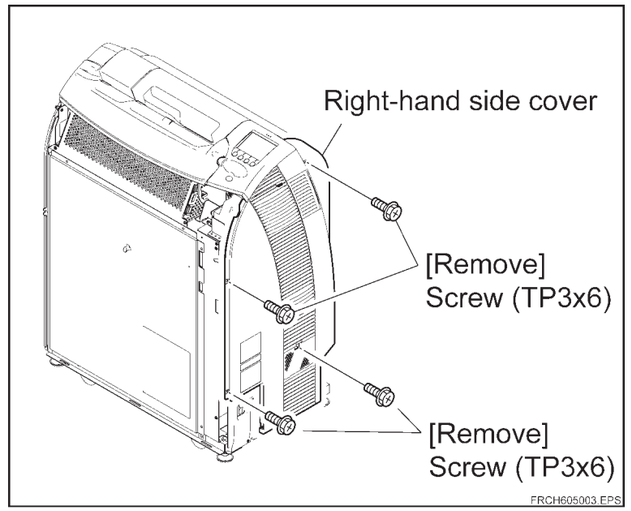
1. **Loosen the screws to remove the front cover.**



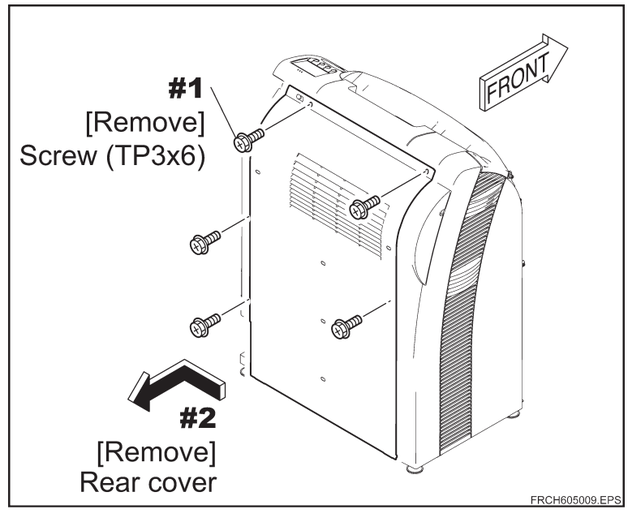
2. **Remove the louver.**



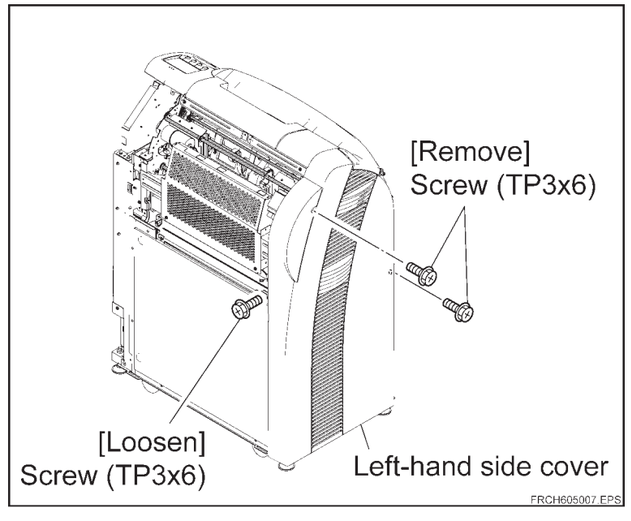
3. **Remove the screws to remove the right-hand side cover.**



4. **Remove the screws, slightly tilt the rear cover laterally, and pull it out toward you for removal.**

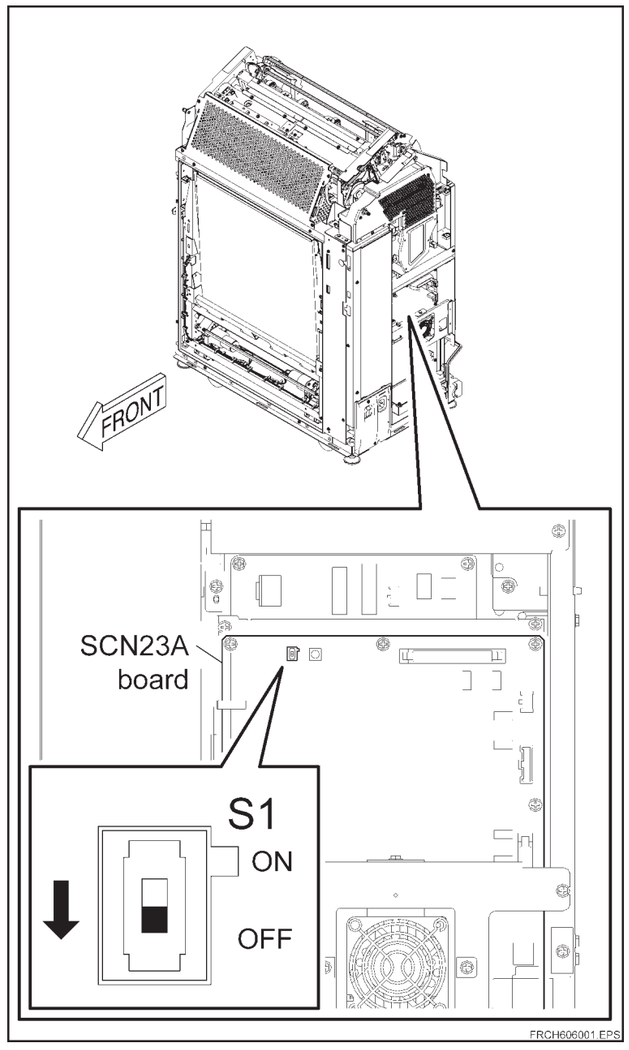


5. **Remove the screws on the left-hand side, loosen the screw on the rear, and remove the left-hand side cover.**



6. Turning OFF the High-Voltage Switch

1. **Turn OFF the high-voltage switch (S1) on the SCN23A board.**



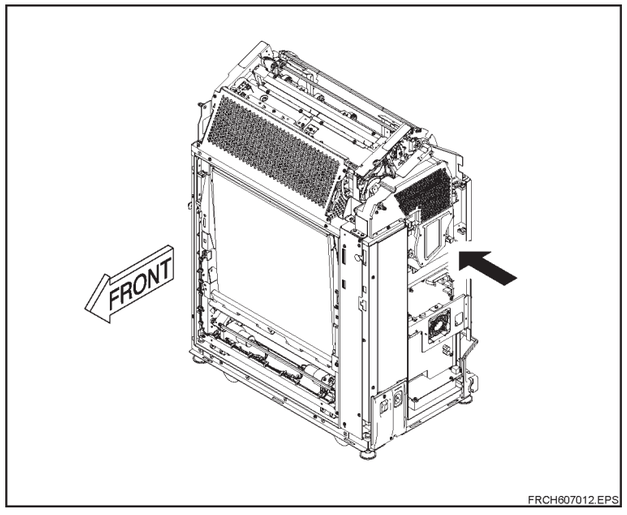
7. Cassette Set Unit

7.1 Removing the Erasure Unit

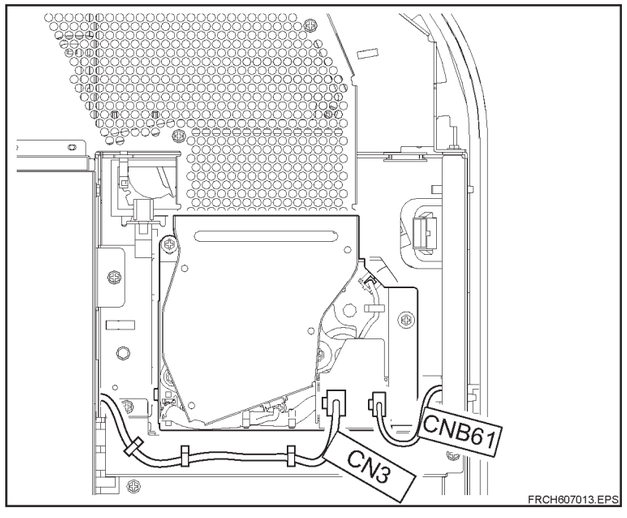
◆ NOTE ◆

When removing the erasure unit, exercise care in handling as the unit is hot.

1. **Take the procedures from 2 to 5 from the direction indicated by the arrow in the figure.**



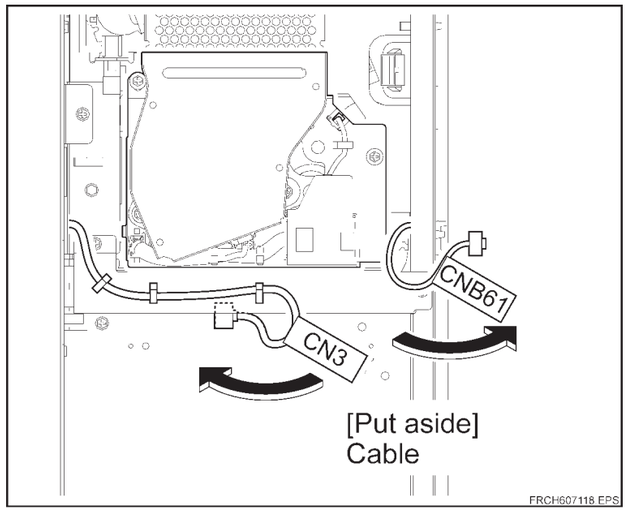
2. **Disconnect the connectors.**



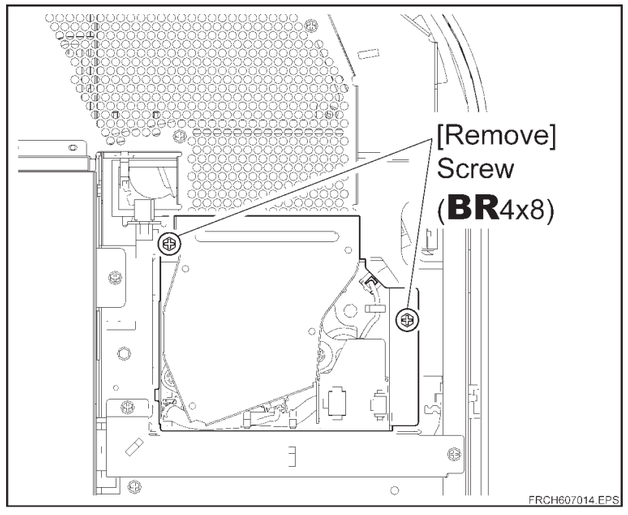
3. **Put the cable aside for the protection of the cable.**

◆ NOTE ◆

Be sure to put the cable aside. Otherwise, the cable and the connector might get caught when removing/reinstalling the erasure unit.



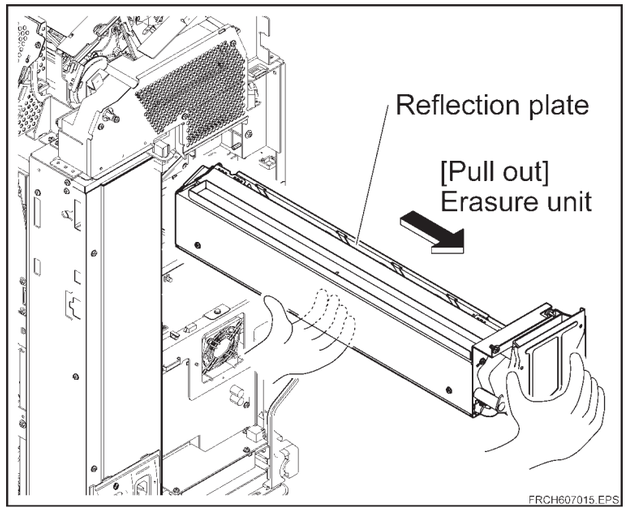
4. **Remove the retaining screws of the erasure unit.**



5. **Holding the erasure unit on the position indicated in the figure, pull it out.**

◆ NOTE ◆

When removing the erasure unit, exercise care in handling as the unit is hot.

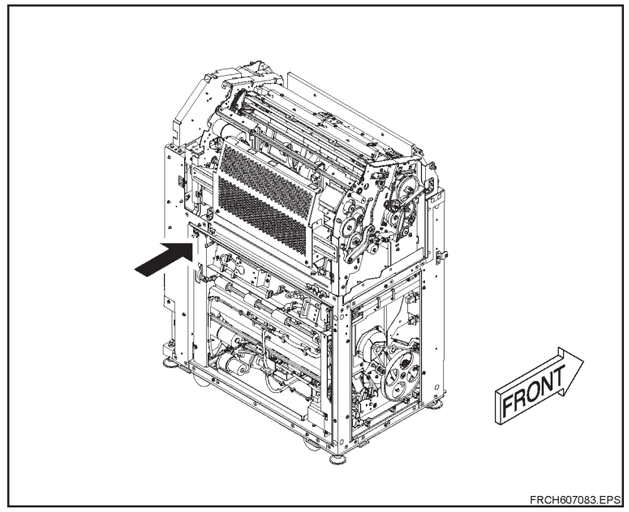


7.2 Removing the Cassette Set Unit

◆ *NOTE* ◆

Since the cassette set unit is a heavy object, be careful about the following points when removing, reinstalling and moving.
- Secure a sufficient working space before the operation.
- Hold the position where the “Hold here” label is applied.
- Lift the unit in a natural posture.

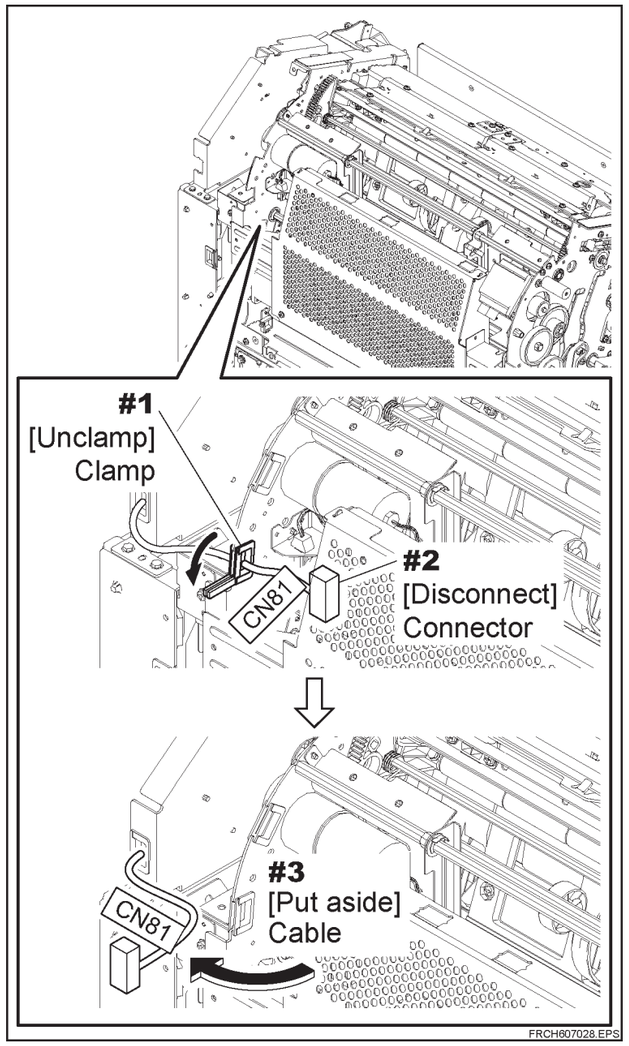
1. **Take the procedures from 2 to 4 from the direction indicated by the arrow in the figure.**



2. **Unclamp the clamp, and disconnect the connector. Put the cable aside out of the housing for the protection of the cable.**

◆ *NOTE* ◆

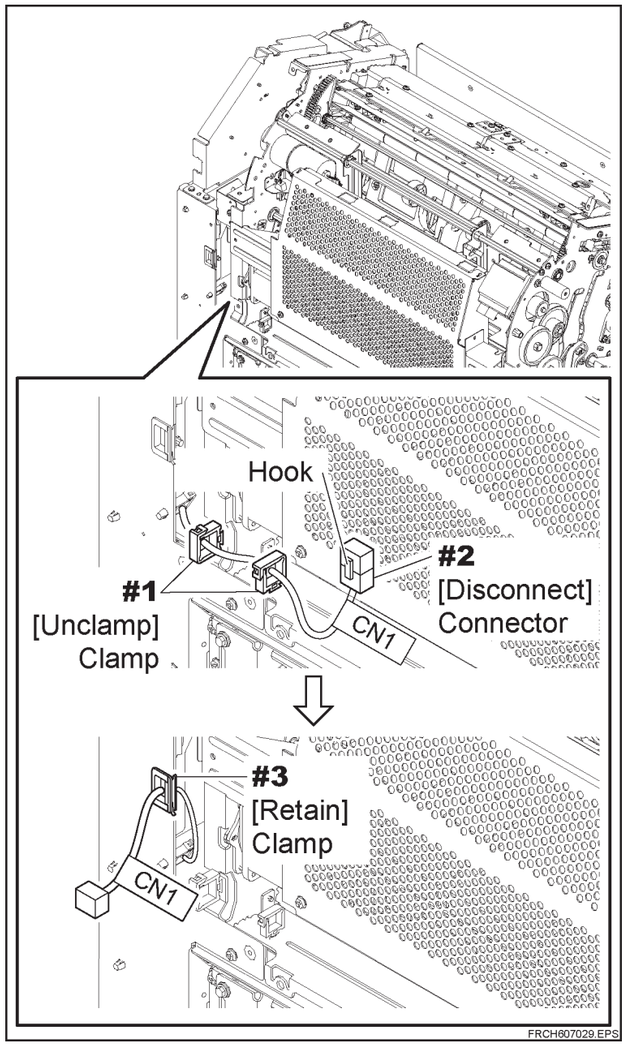
Be sure to put the cable aside out of the housing. Otherwise, the cable and the connector might get caught when removing/reinstalling the cassette set unit.



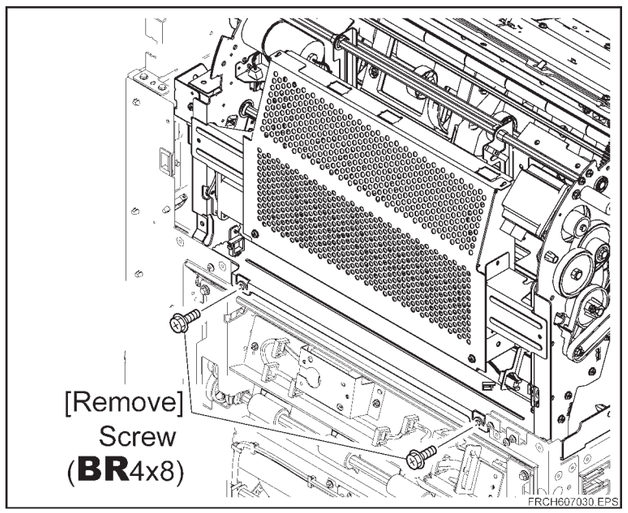
3. **Unclamp the clamp, and disconnect the connector while pushing the hook of the connector. Retain the cable with the clamp for the protection of the cable.**

◆ ***NOTES*** ◆

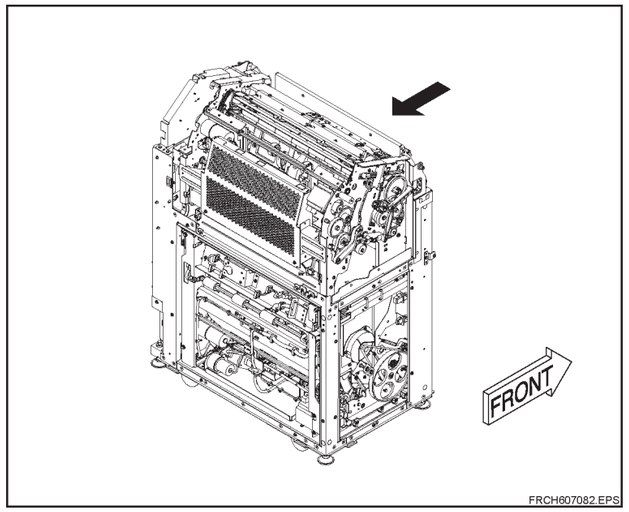
- *As the working space is small, exercise care not to get injured by peripheral components when disconnecting the connector.*
- *Be sure to retain the cable with the clamp. Otherwise, the cable and the connector might get caught when removing/ reinstalling the cassette set unit.*



4. **Remove the retaining screws of the cassette set unit.**



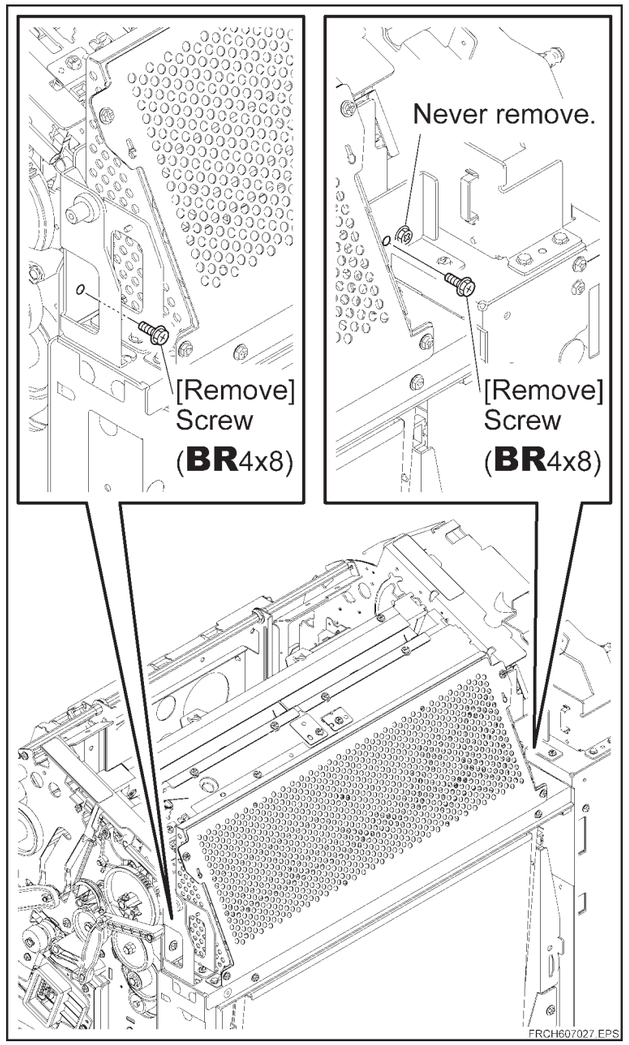
5. **Take the procedure 6 from the direction indicated by the arrow in the figure.**



6. **Remove the retaining screws of the cassette set unit.**

⚠ ***CAUTION***

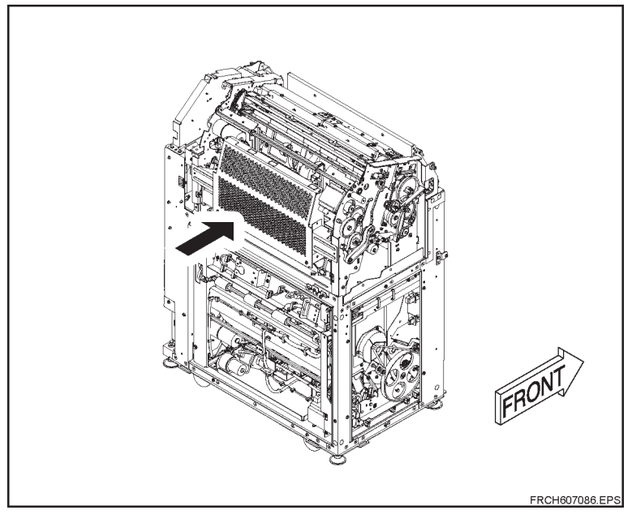
Never remove red painted screws.



7. **Take the procedure 8 from the direction indicated by the arrow in the figure.**

◆ ***NOTE*** ◆

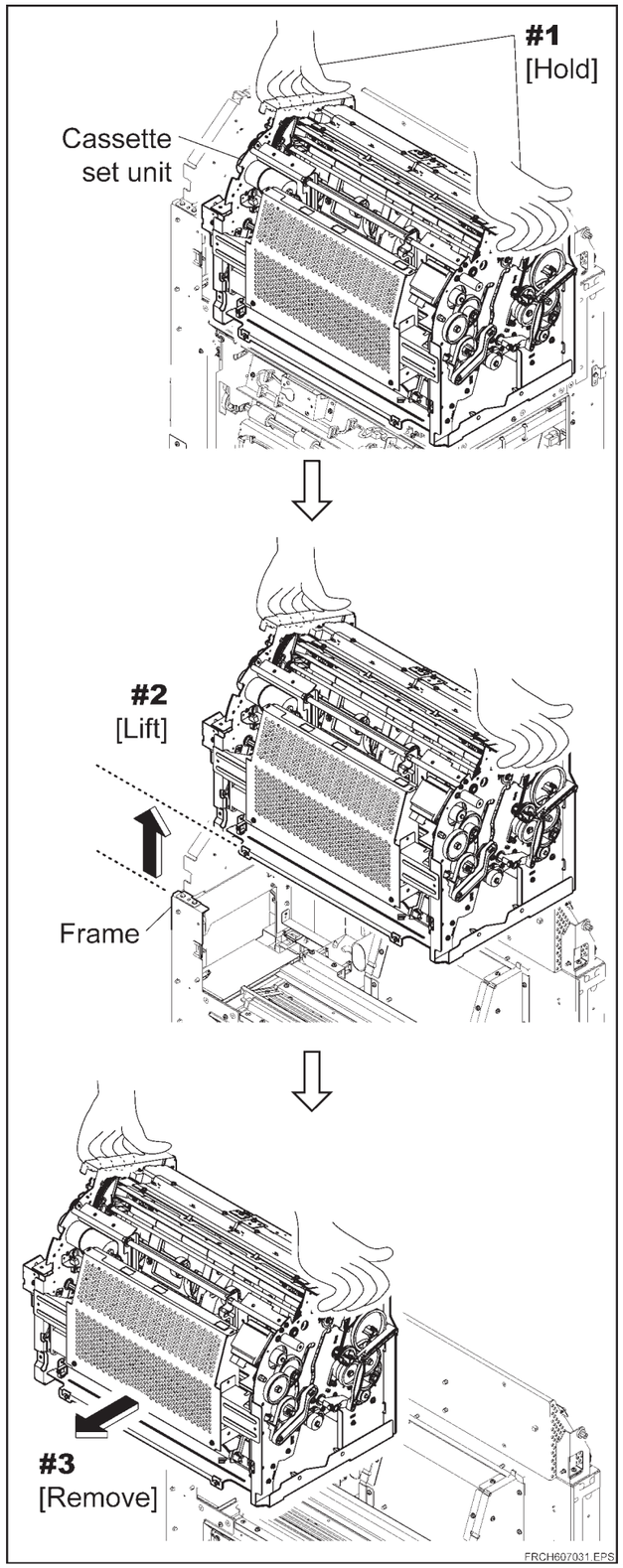
The heavy object is to be handled in the following procedure. Be sure to work from the direction as instructed.



8. **Hold the cassette set unit on the positions indicated in the figure. Lift the cassette set unit above the housing frame and remove it.**

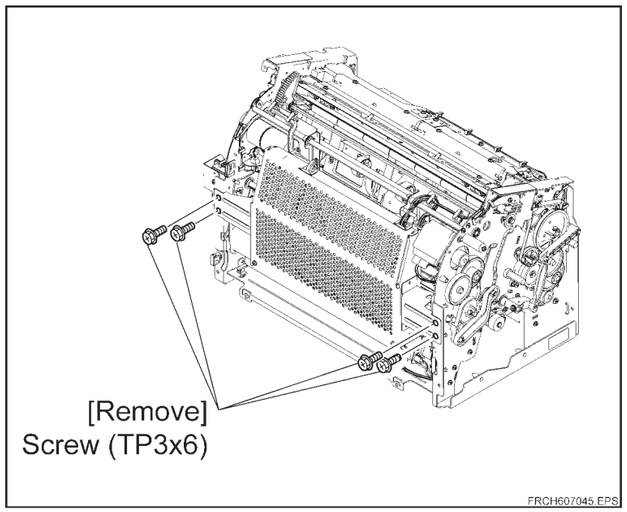
◆ ***NOTES*** ◆

- *Since the cassette set unit is a heavy object, be sure to secure a sufficient working space before the operation, and work in a natural posture.*
- *Be sure to lift the cassette set unit above the housing frame before removing. If the cassette set unit has not been lifted high enough, the unit might come into contact with the housing, causing the damage.*



7.3 Preparation for Cleaning of Suction Cups

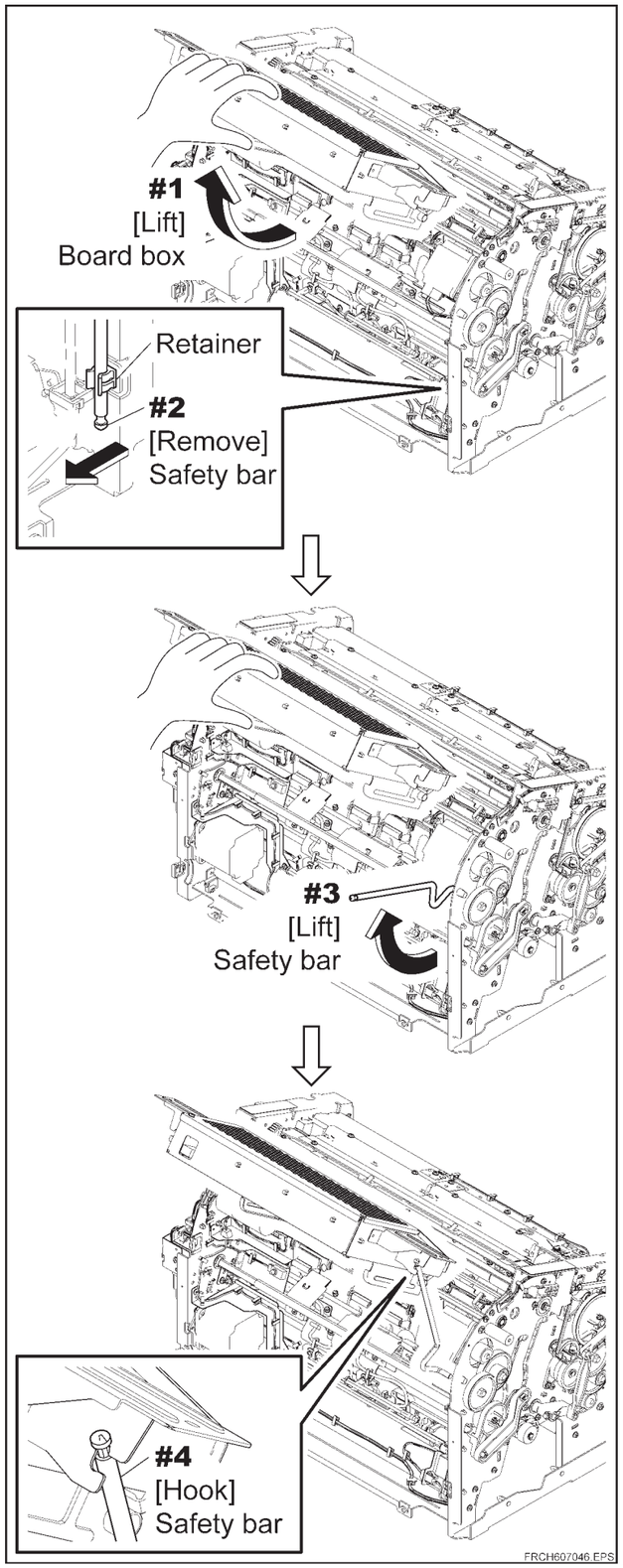
1. **Remove the screws.**



2. **Lift the board box and remove the safety bar from the retainer by means of a screwdriver or the like. Lift the safety bar and hook it on the bracket of the board box.**

◆ ***NOTE*** ◆

Be sure to hook the safety bar on the bracket of the board box to prevent the board box from falling down. Otherwise, the board box might fall down, hurting the operator.



3. **Manually rotate the gear of the motor, and check to make sure that the debris fall prevention shutter assembly has moved to its closed position.**

⚠ CAUTION

Do not work with your head put under the board box. The safety bar supporting the board box might come off, causing you to get injured.

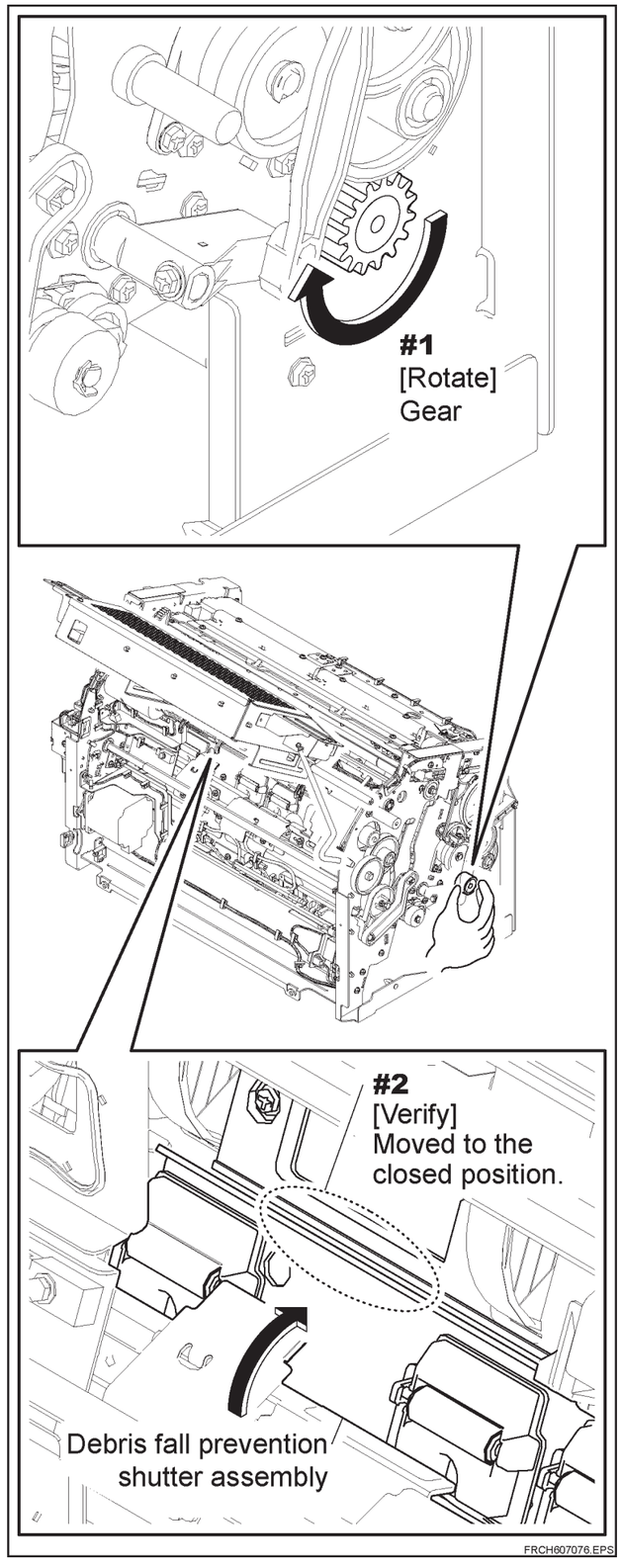
◆ NOTE ◆

Check to make sure that the debris fall prevention shutter assembly has moved to its closed position. Otherwise, the tip of the IP removal arm comes into contact, preventing the arm from moving.

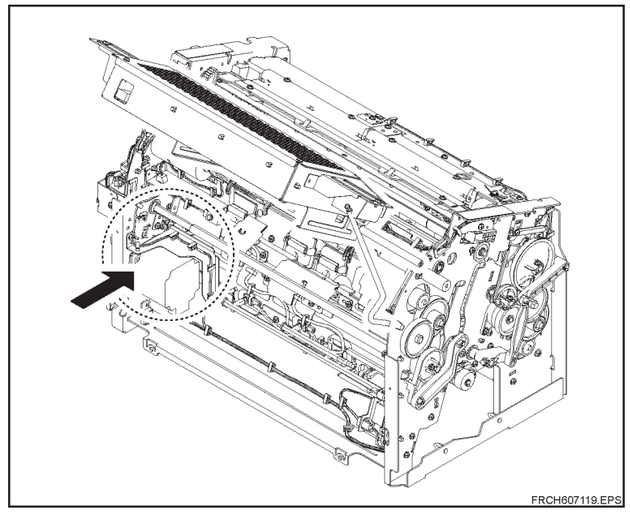
◇ *REFERENCE* ◇

For the details on the operation of the debris fall prevention shutter assembly, refer to the Machine Description "5.2 Cassette Set Unit".

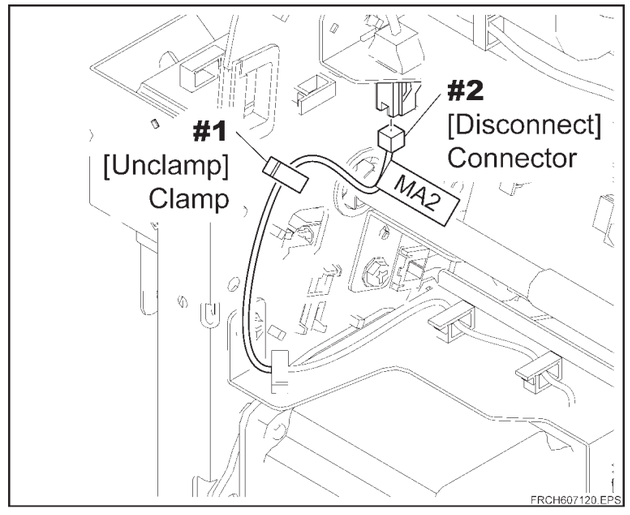
☞ ***{MD:5.2_Cassette Set Unit}***



4. **Take the procedures from 5 to 9 from the direction indicated by the arrow in the figure.**



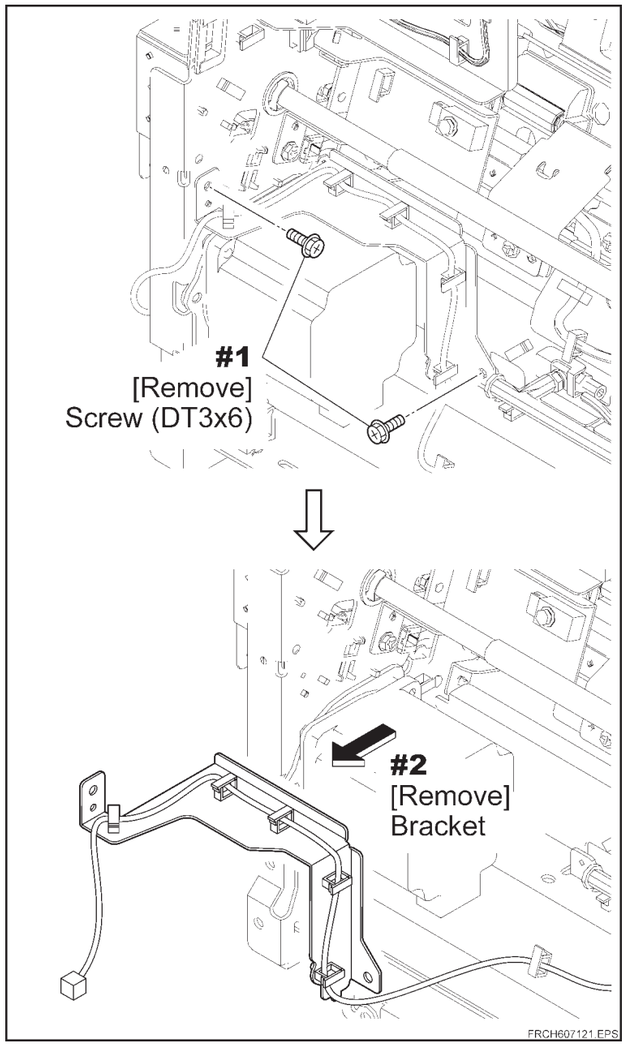
5. **Unclamp the clamp, and disconnect the connector.**



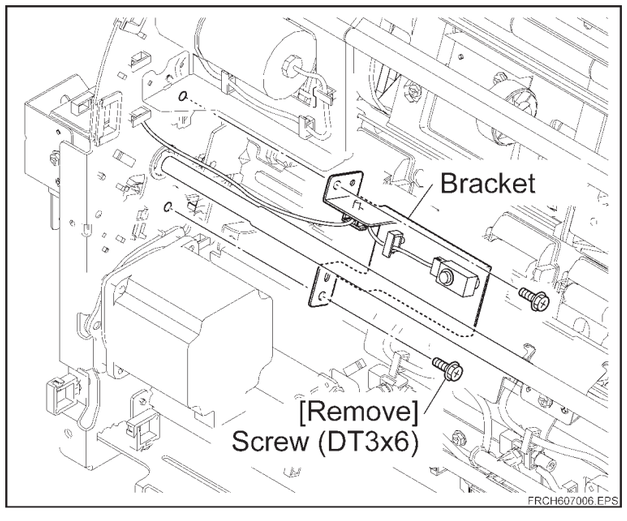
6. **Remove the screws to remove the bracket.**

◆ *NOTE* ◆

The removed bracket has the cable left attached. Exercise care not to damage the cable.



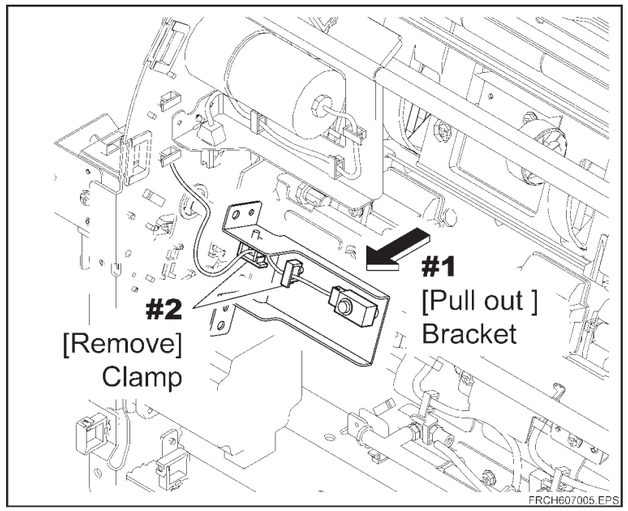
7. **Remove the retaining screws of the bracket.**



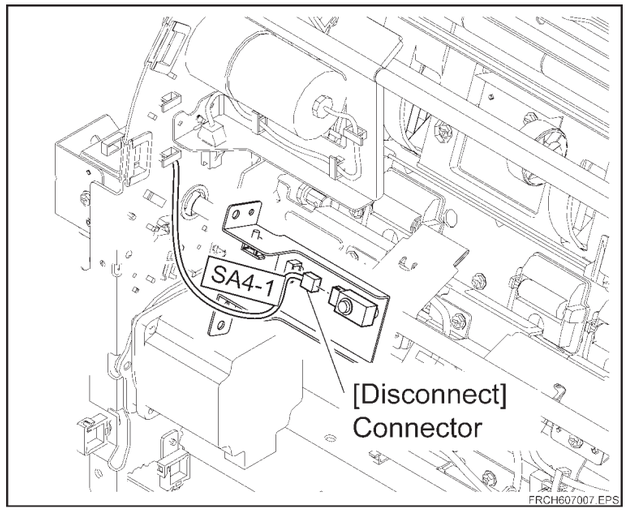
8. **Pull out the bracket, and unclamp the clamp.**

◆ *NOTE* ◆

Since the working space is small, exercise care not to get injured on your hands by the edge of the bracket.

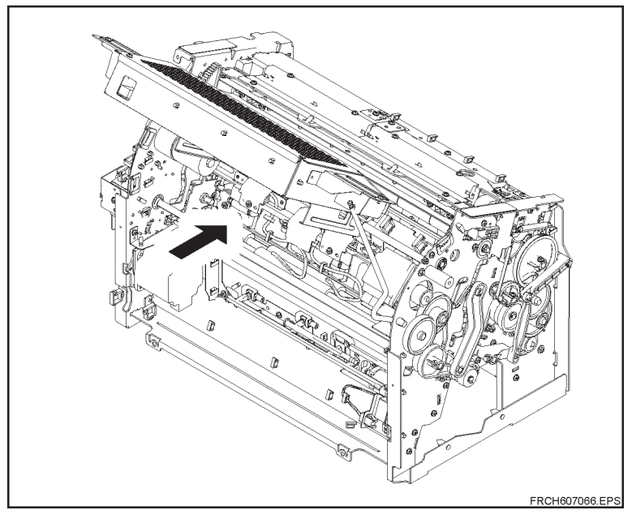


9. **Disconnect the connector.**

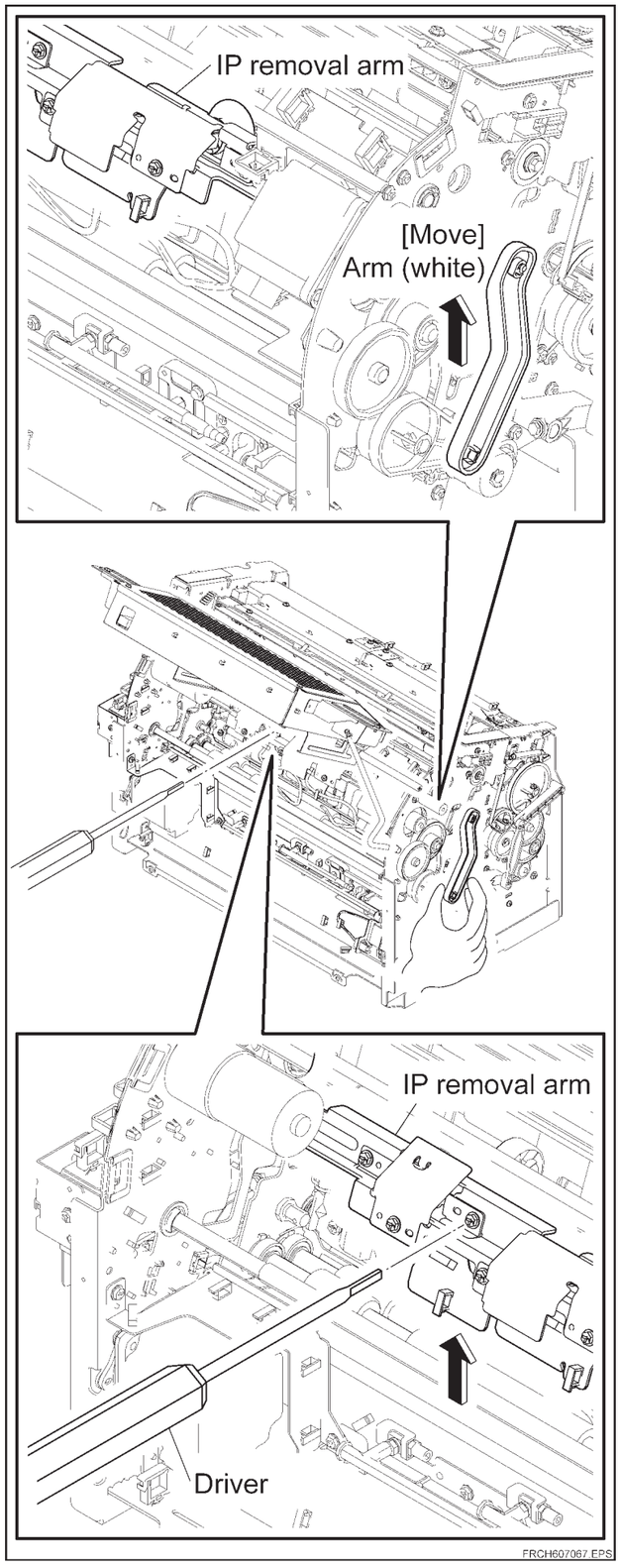


7.4 Cleaning the Suction Cups (Left-Hand)

1. **Take the procedures from 2 to 6 from the direction indicated by the arrow in the figure.**



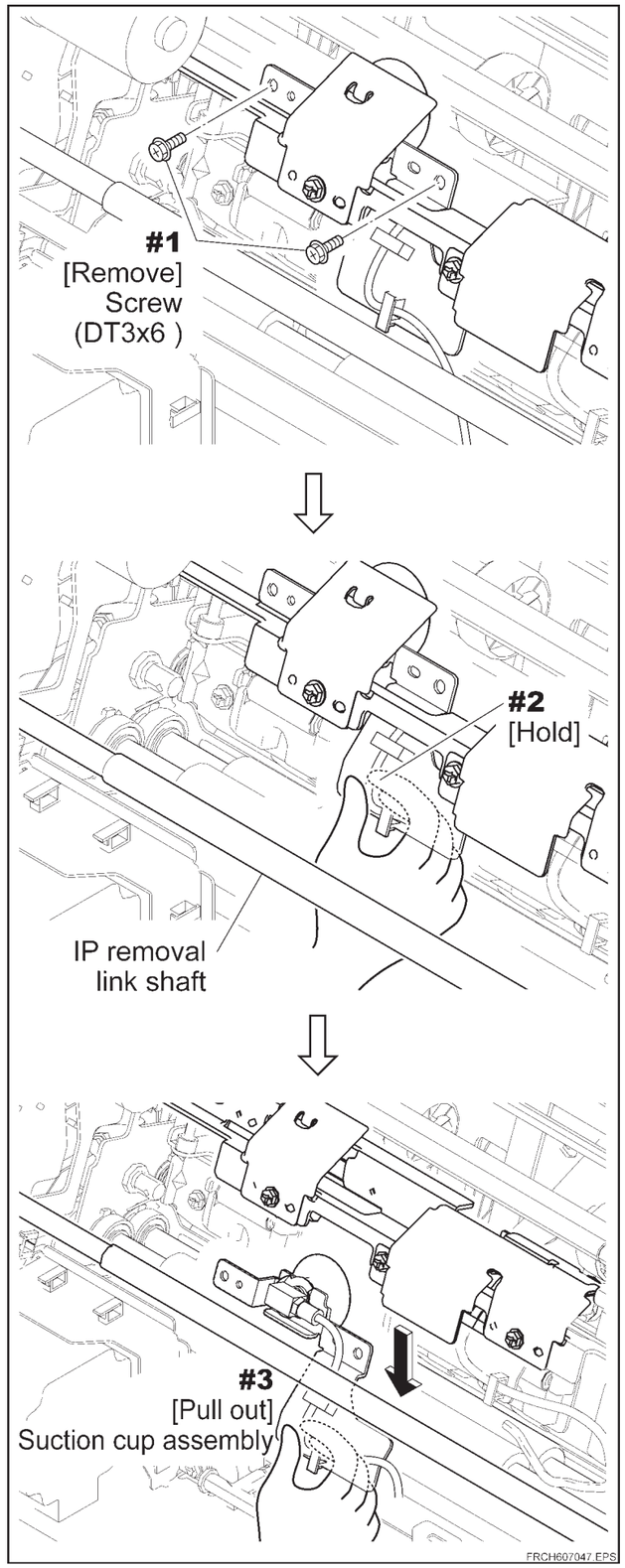
2. **Move the IP removal arm while holding the arm (white) to a position where the driver can access the screws of the IP removal arm.**



3. **Remove the retaining screws of the suction cup assembly (left-hand). Hold the assembly on the position indicated in the figure, and pull out the assembly (left-hand) from below the IP removal link shaft.**

◆ ***NOTE*** ◆

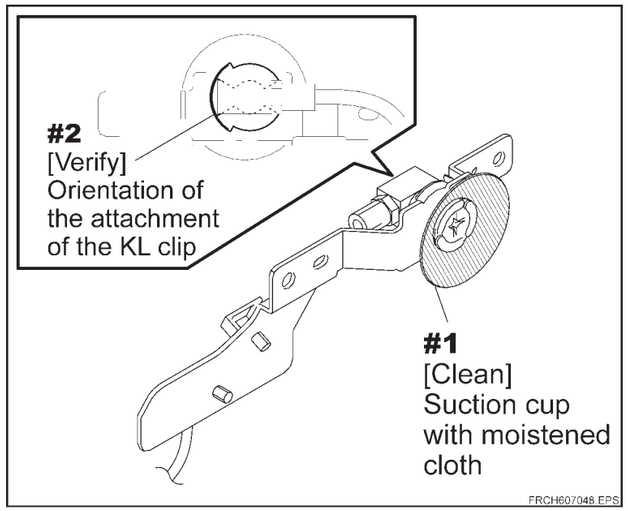
Exercise care not to damage the hose when pulling out the suction cup assembly.



4. **Clean the suction cup (left-hand) with a moistened cloth. Check the mounted orientation of the KL clip.**

◆ ***NOTES*** ◆

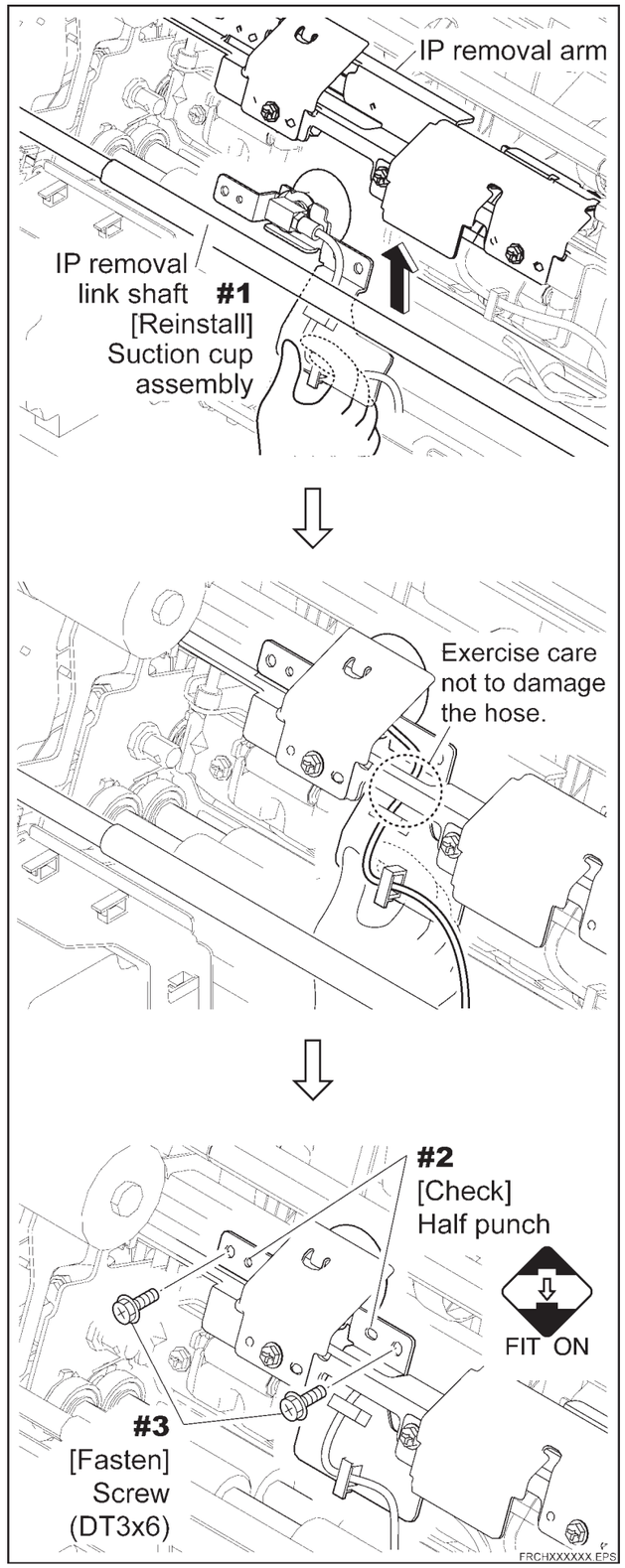
- *Exercise care not to excessively pull out the suction cup assembly, causing the hose to be damaged.*
- *Check to make sure that the KL clip is attached in the orientation indicated in the figure. Otherwise, the suction cup assembly cannot be correctly mounted on the IP removal arm.*



5. **Reinstall the suction cup assembly (left-hand) on the IP removal arm from below the IP removal link shaft. Make sure that the suction cup assembly (left-hand) is correctly mounted on the half punches, before retaining with the screws.**

◆ ***NOTES*** ◆

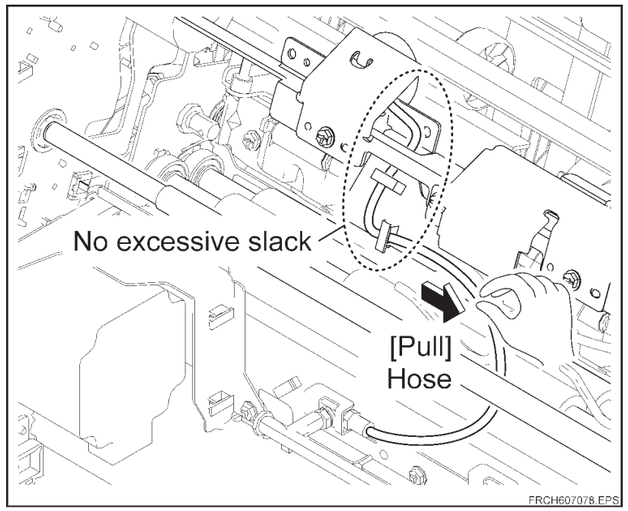
- *Exercise care not to damage the hose when reinstalling the suction cup assembly on the IP removal arm.*
- *Be sure to verify that the suction cup assembly has been correctly mounted on the half punches, before retaining with the screws.*



6. **Pull the hose in the direction indicated by the arrow, and make sure that there is no excessive slack of the hose in the region surrounded by the dotted line in the figure.**

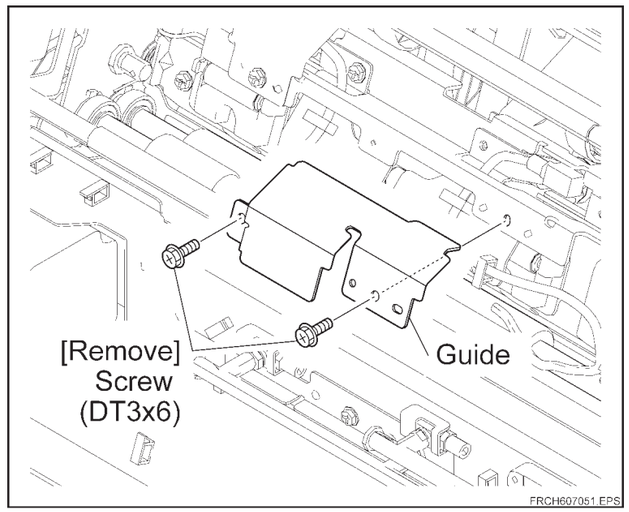
◆ ***NOTE*** ◆

If the hose has an excessive slack, the hose might get damaged as it is pulled when the IP removal arm is moved.



7.5 Cleaning the Suction Cups (Right-Hand)

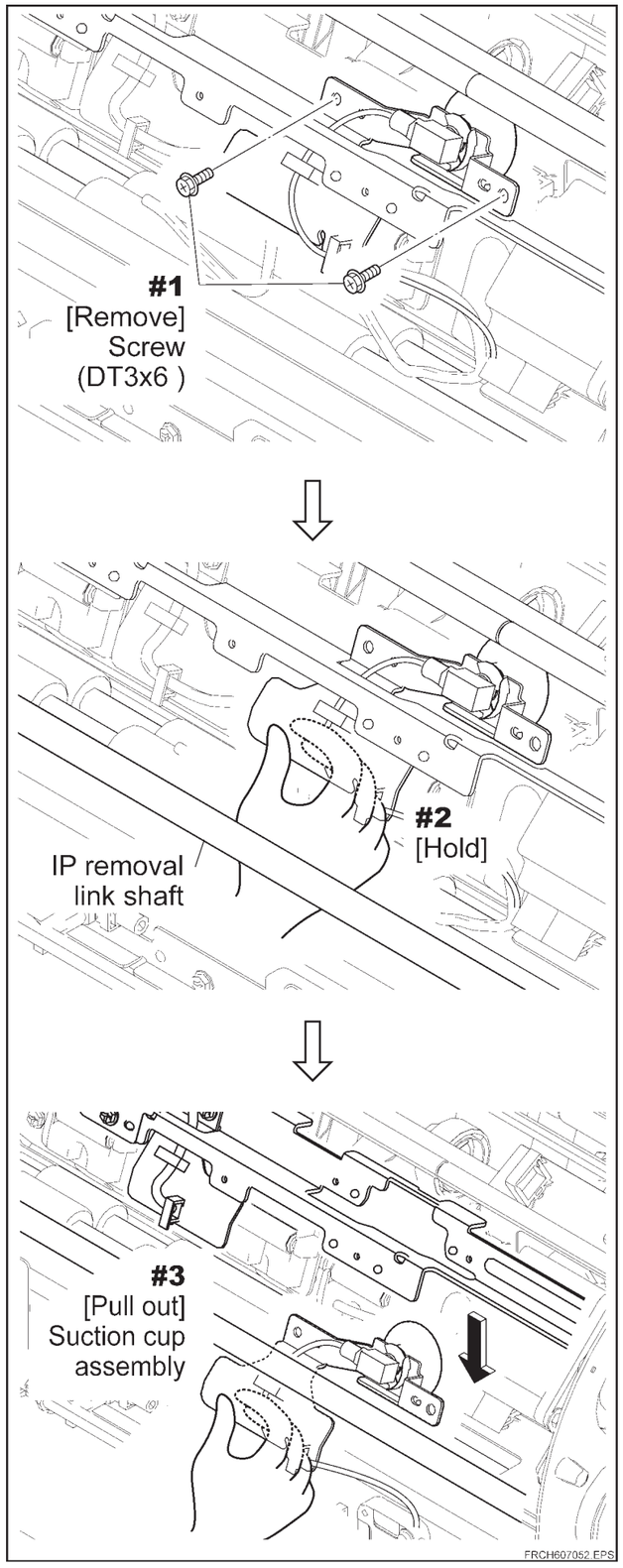
1. **Remove the screws, to remove the guide.**



2. **Remove the retaining screws of the suction cup assembly (right-hand). Hold the assembly on the position indicated in the figure, and pull out the assembly (right-hand) from below the IP removal link shaft.**

◆ ***NOTE*** ◆

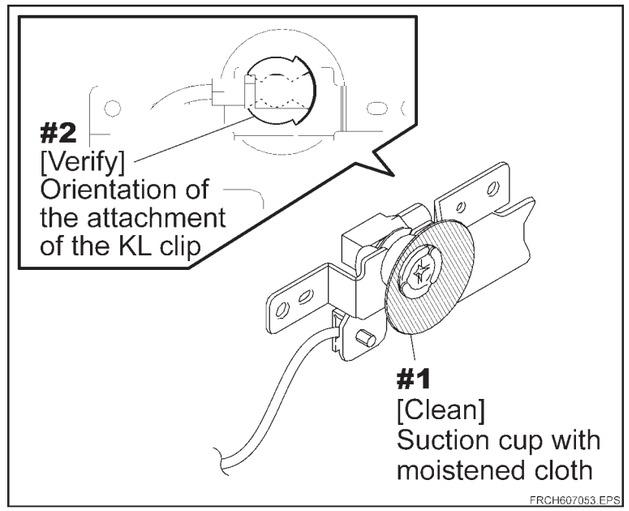
Exercise care not to damage the hose when pulling out the suction cup assembly.



3. **Clean the suction cup (right-hand) with a moistened cloth. Check the mounted orientation of the KL clip.**

◆ ***NOTES*** ◆

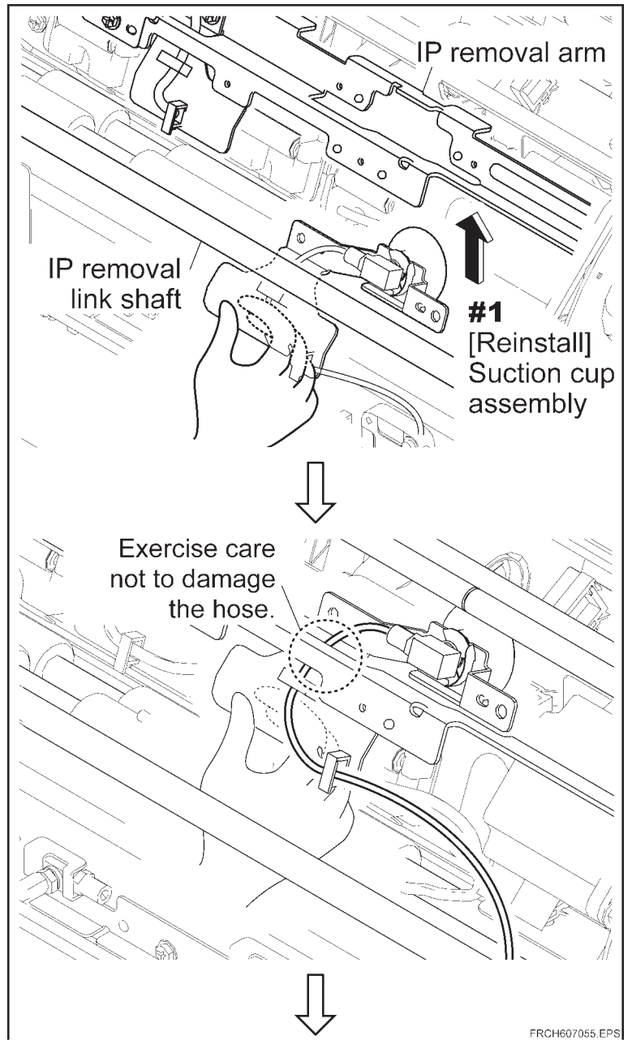
- *Exercise care not to excessively pull out the suction cup assembly, causing the hose to be damaged.*
- *Check to make sure that the KL clip is attached in the orientation indicated in the figure. Otherwise, the suction cup assembly cannot be correctly mounted on the IP removal arm.*

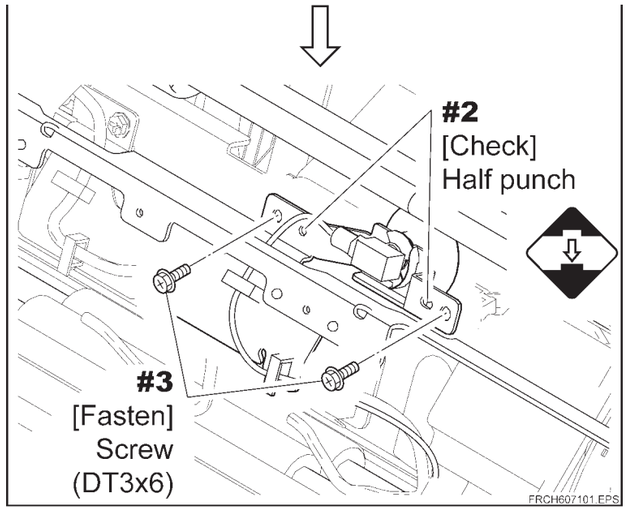


4. **Reinstall the suction cup assembly (right-hand) on the IP removal arm from below the IP removal link shaft. Make sure that the suction cup assembly (right-hand) is correctly mounted on the half punches, before retaining with the screws.**

◆ ***NOTES*** ◆

- *Exercise care not to damage the hose when reinstalling the suction cup assembly on the IP removal arm.*
- *Be sure to verify that the suction cup assembly has been correctly mounted on the half punches, before retaining with the screws.*

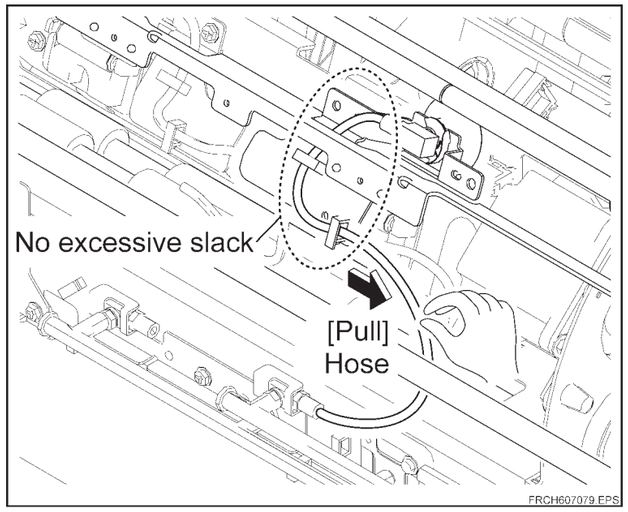




5. **Pull the hose in the direction indicated by the arrow, and make sure that there is no excessive slack of the hose in the region surrounded by the dotted line in the figure.**

◆ ***NOTE*** ◆

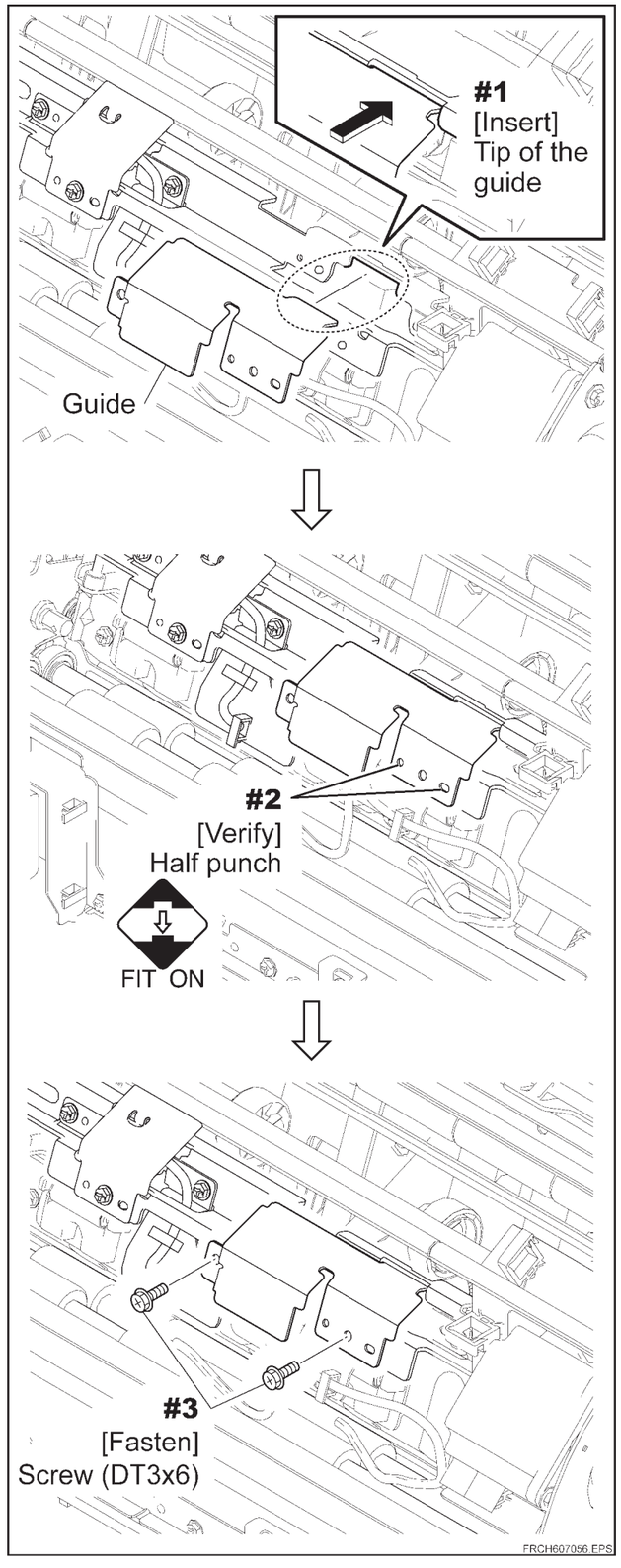
If the hose has an excessive slack, the hose might get damaged as it is pulled when the IP removal arm is moved.



6. **Insert the tip of the guide into an aperture of the bracket before mounting the guide. Be sure to verify that the guide is correctly mounted on the half punches, before retaining with the screws.**

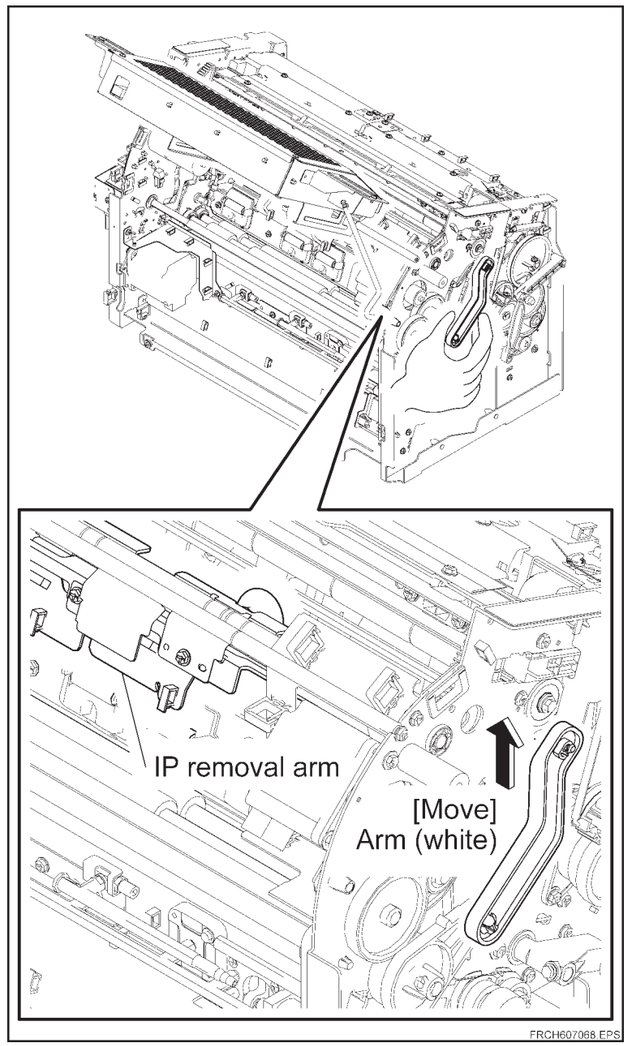
◆ ***NOTE*** ◆

Be sure to verify that the guide is correctly mounted on the half punches, before retaining with the screws.

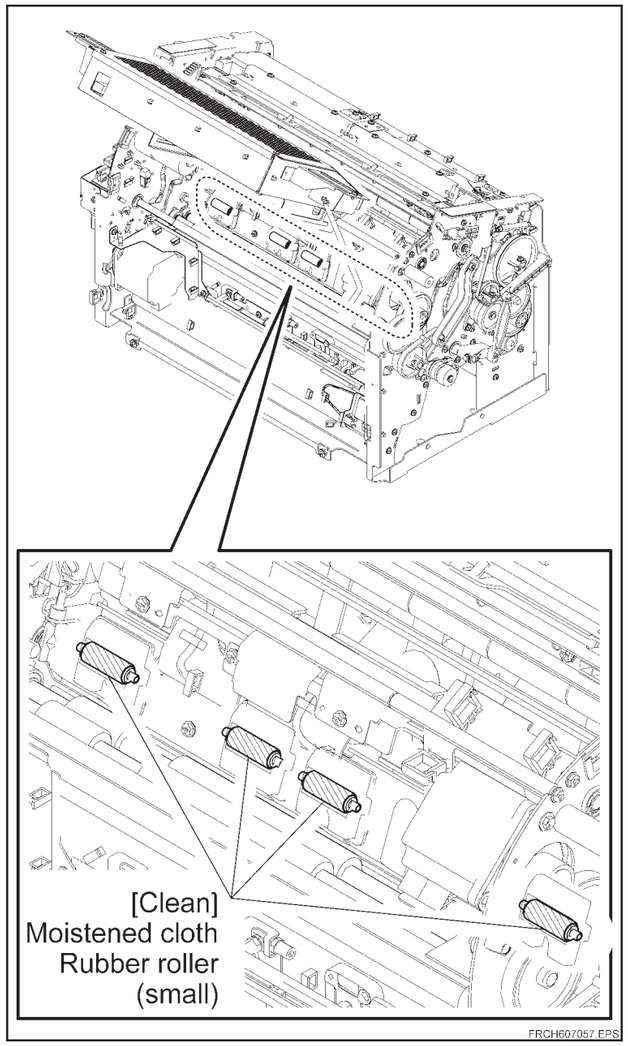


7.6 Cleaning the Rubber Rollers (Small)

1. **Hold the arm (white) to lift the IP removal arm to the uppermost position.**



2. **Clean the rubber roller (small) with a moistened cloth.**

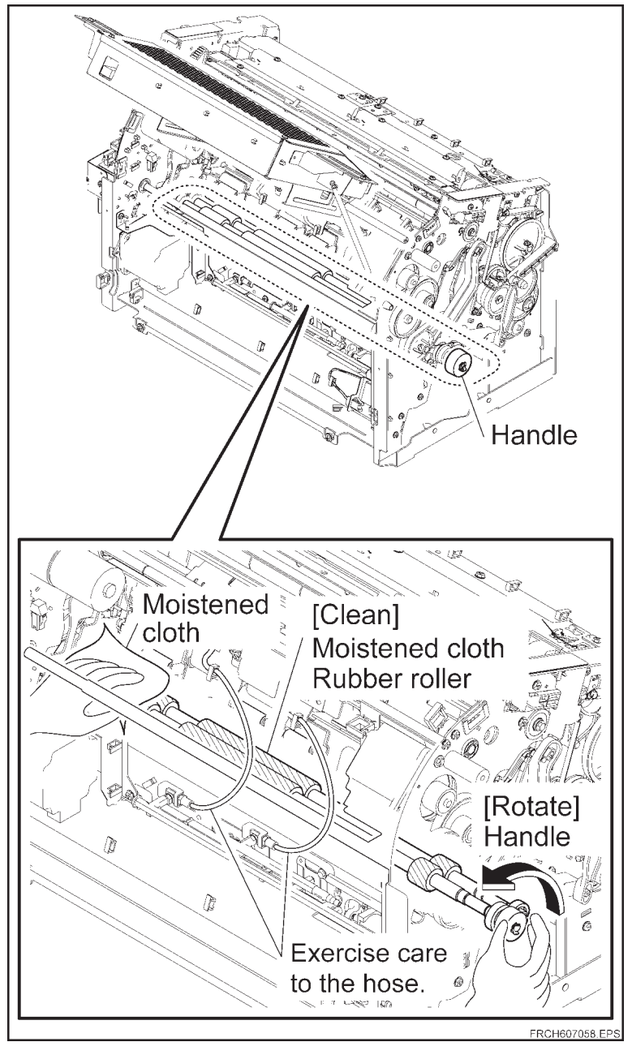


7.7 Cleaning the Rubber Rollers

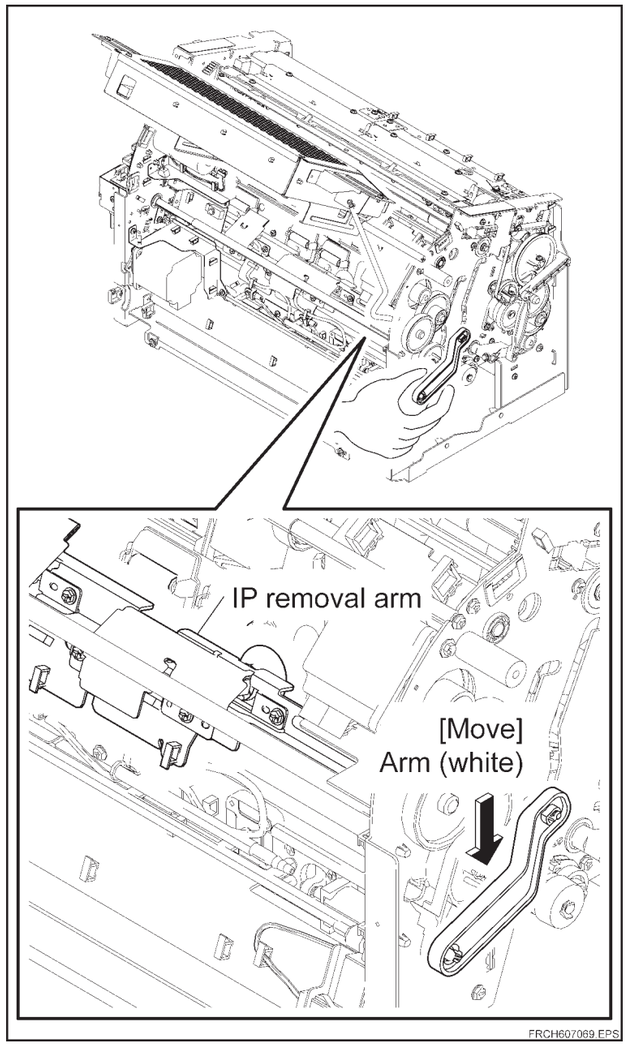
1. **Push the moistened cloth against the rubber roller. Clean the roller while rotating it by the handle.**

◆ ***NOTE*** ◆

Exercise care not to damage or pull the hose when pushing the moistened cloth against the rubber roller.

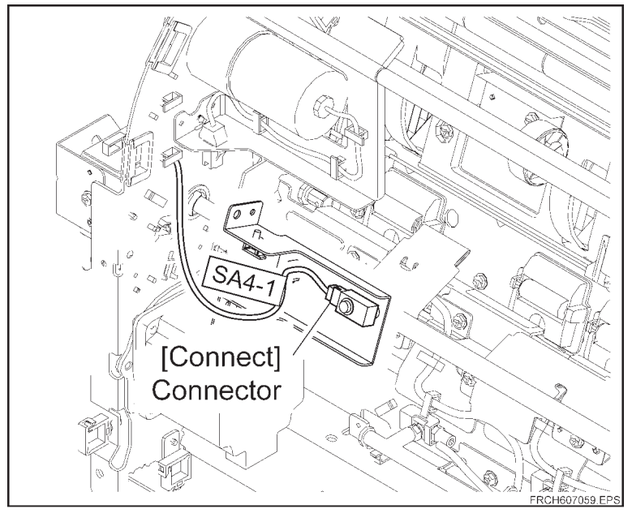


2. **Hold the arm (white) to move the IP removal arm to the lowermost position.**

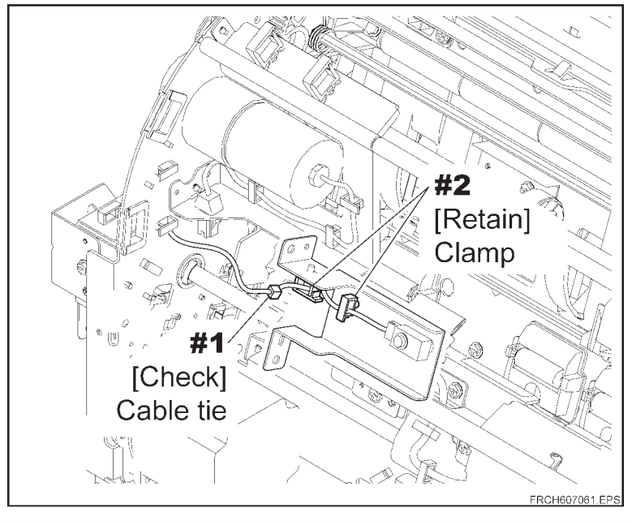


7.8 Installing the Components

1. **Connect the connector.**



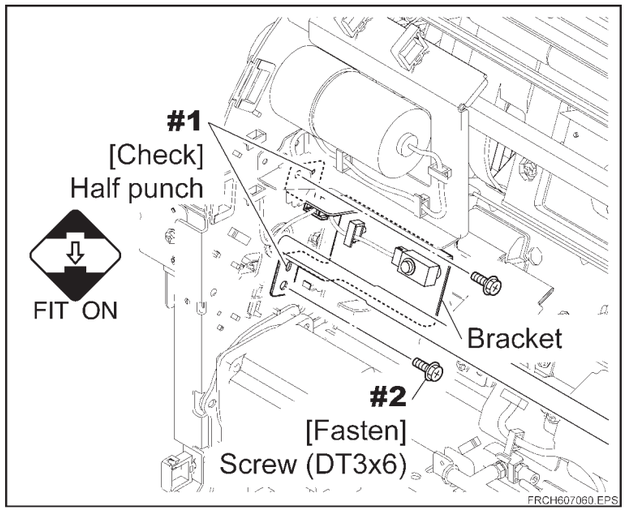
2. **Check to make sure that the cable tie is positioned as indicated in the figure. Then, retain the cable with the clamps.**



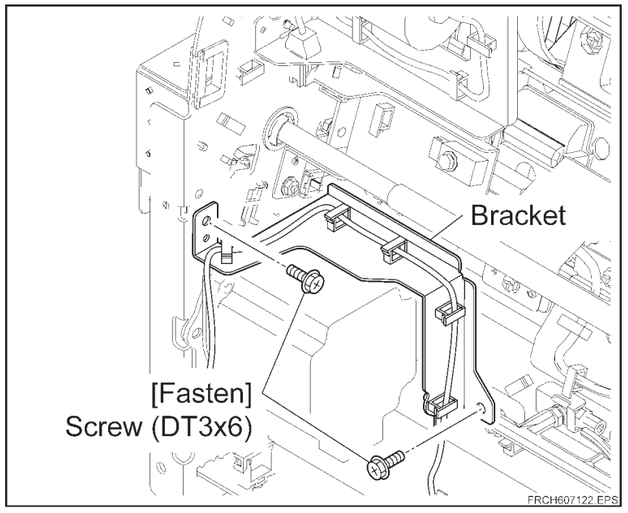
3. **Check to make sure that the bracket is correctly mounted on the half punches, before retaining with the screws.**

◆ ***NOTE*** ◆

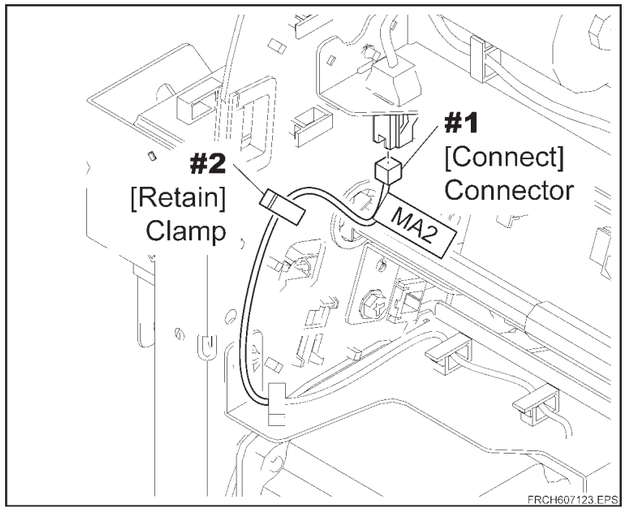
Always make sure that the bracket is correctly mounted on the half punches, before retaining with the screws.



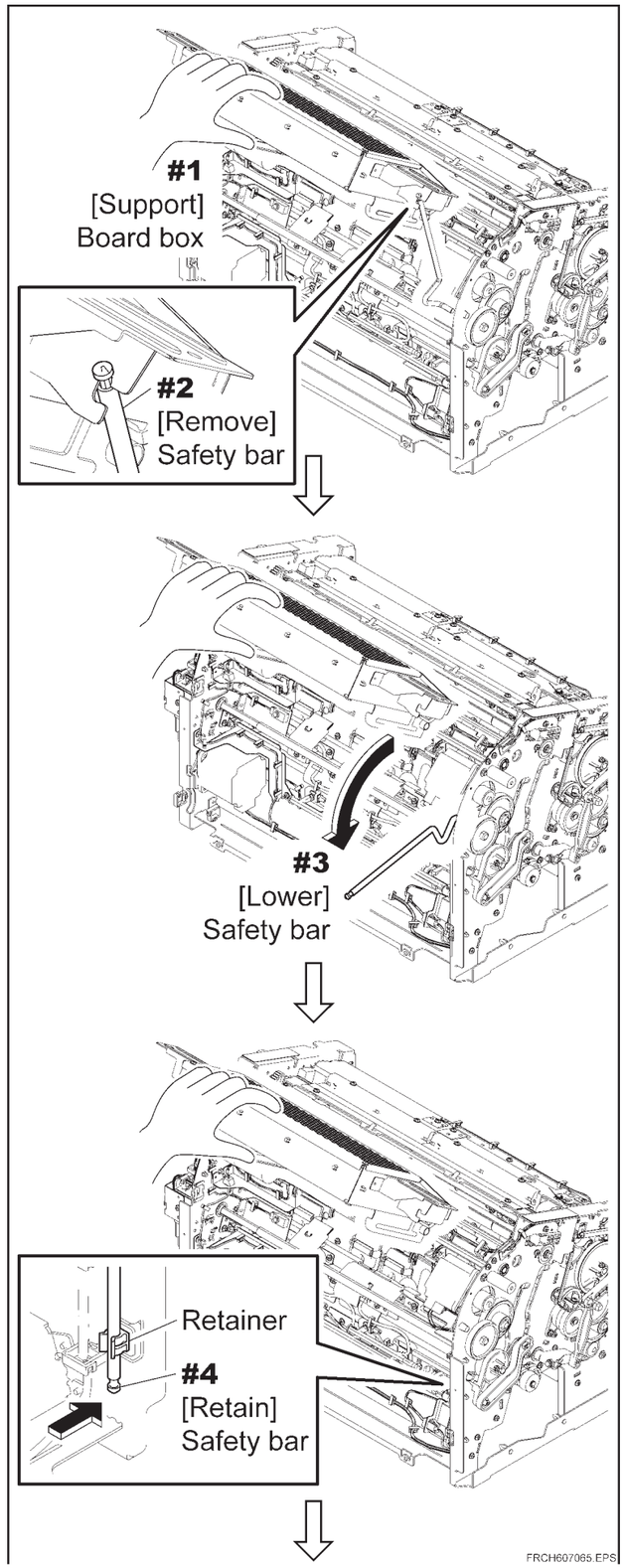
4. **Reinstall the bracket, and retain with the screws.**

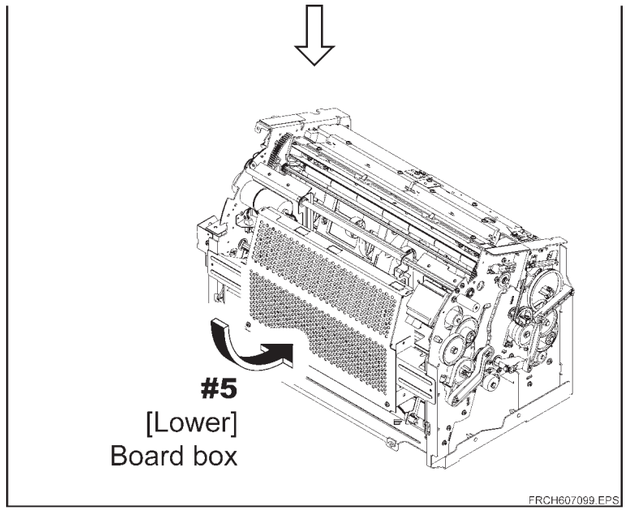


5. **Connect the connector, and retain the cable with the clamp.**

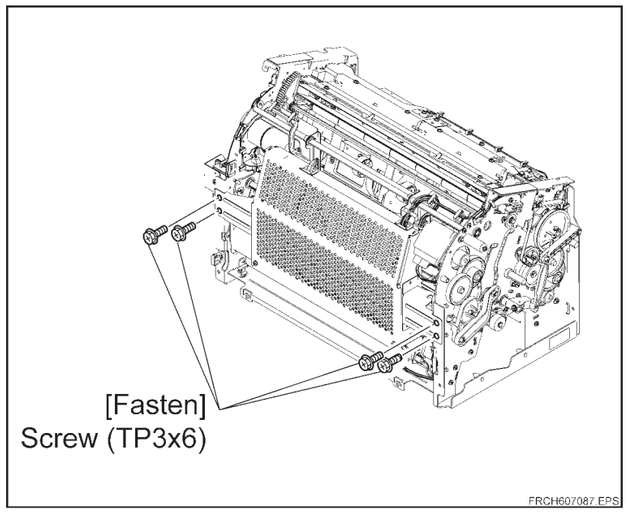


6. **While holding the position indicated in the figure and supporting the board box, remove the safety bar. Lower the safety bar and fix to the retainer. Then lower the board box.**



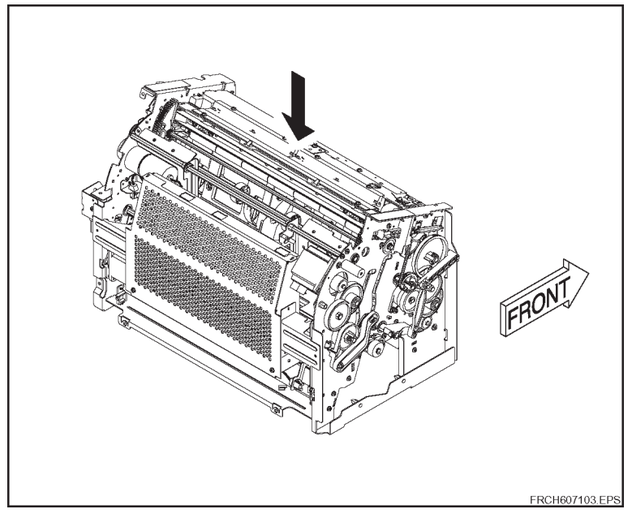


7. **Reinstall the screws.**

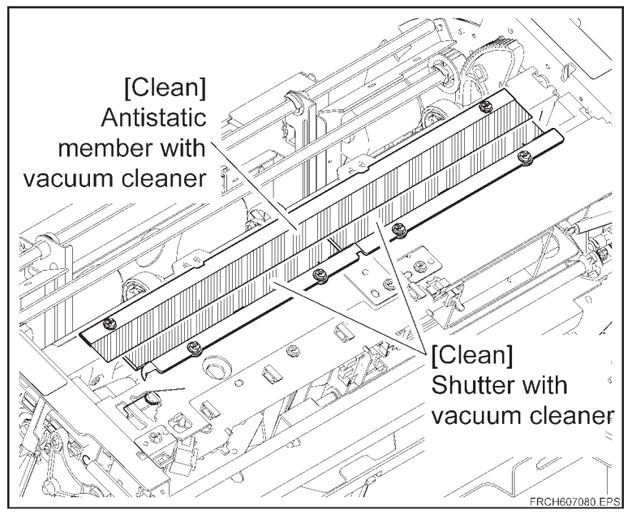


7.9 Cleaning the Antistatic Member and Shutter

1. **Take the procedure 2 from the direction indicated by the arrow in the figure.**

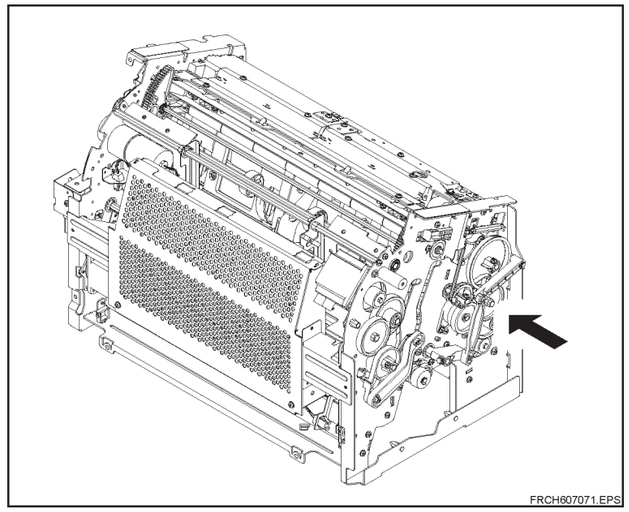


2. **Clean the antistatic member and the shutter with a vacuum cleaner.**



7.10 Replacing the Dumper (Opposite Reference Side)

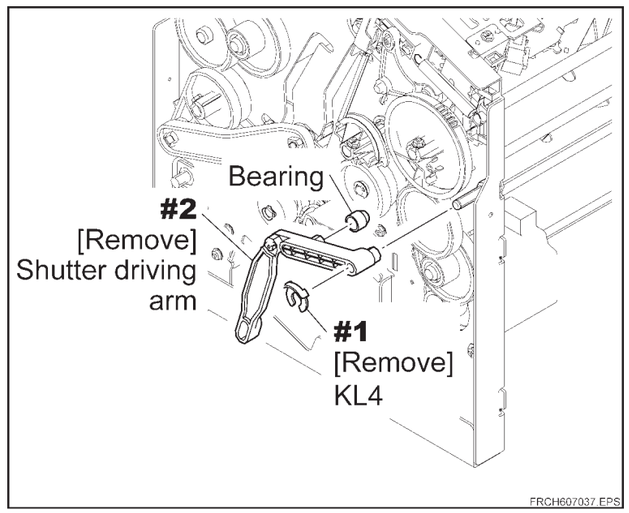
1. **Take the procedures from 2 to 4 from the direction indicated by the arrow in the figure.**



2. **Remove the KL clip, and remove the shutter driving arm.**

◆ ***NOTE*** ◆

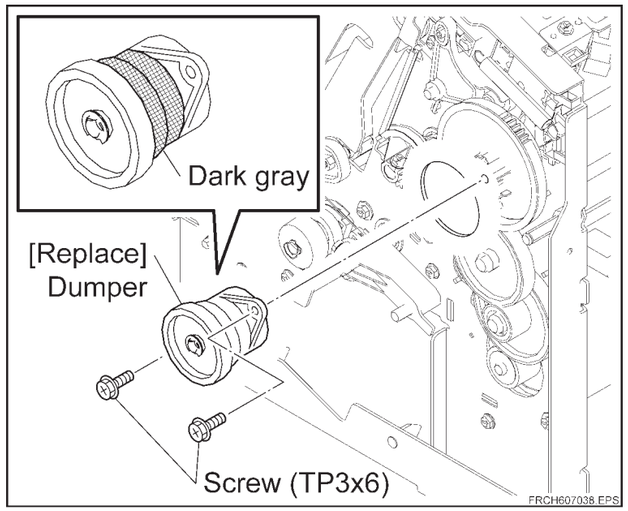
When the shutter driving arm is removed, the bearing installed inside the arm might drop. Exercise care not to miss the bearing.



3. **Replace the dumper (opposite reference side).**

◆ ***NOTE*** ◆

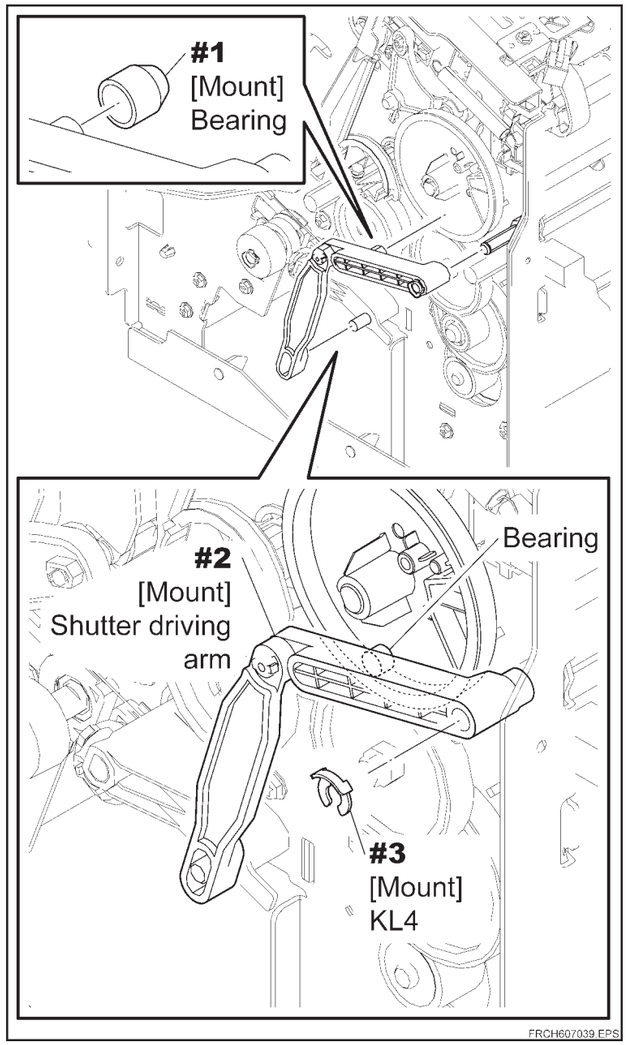
The dumpers on the reference side and the opposite reference side are different in color. Put on the dumper with a dark gray barrel on the opposite reference side.



4. **Install the bearing inside the shutter driving arm. Then mount the shutter driving arm and the KL clip.**

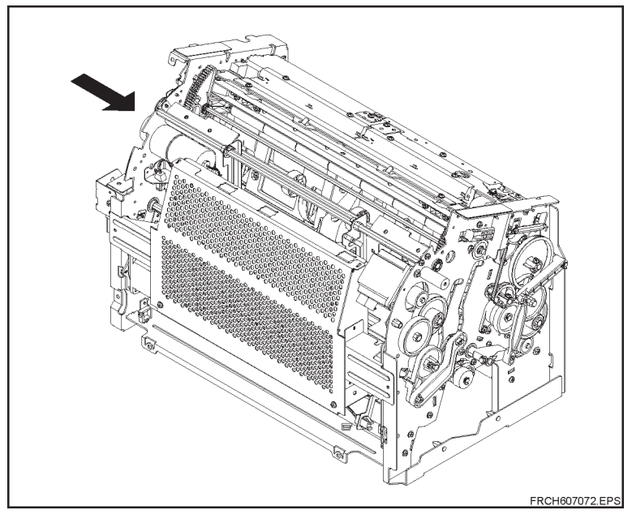
◆ ***NOTES*** ◆

- *Pay attention to the orientation of mounting the bearing.*
- *Mount the shutter driving arm and the bearing in place referring to the figure.*

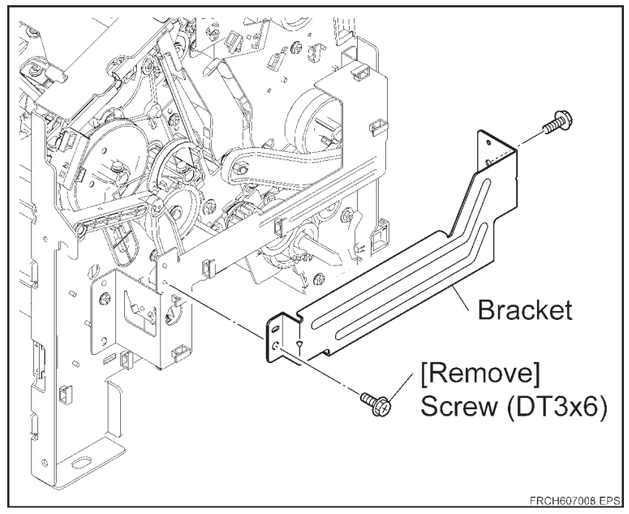


7.11 Replacing the Dumper (Reference Side)

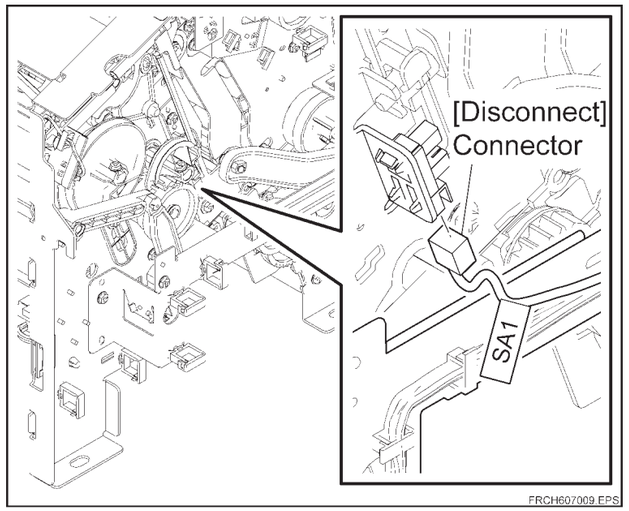
1. **Take the procedures from 2 to 14 from the direction indicated by the arrow in the figure.**



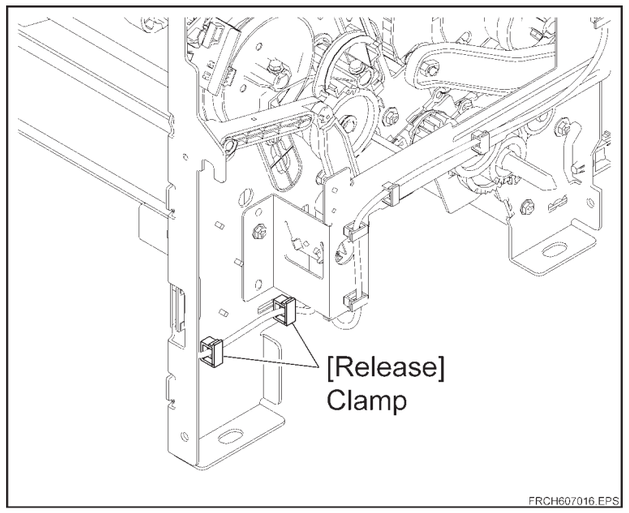
2. **Remove the bracket.**



3. **Disconnect the connector.**



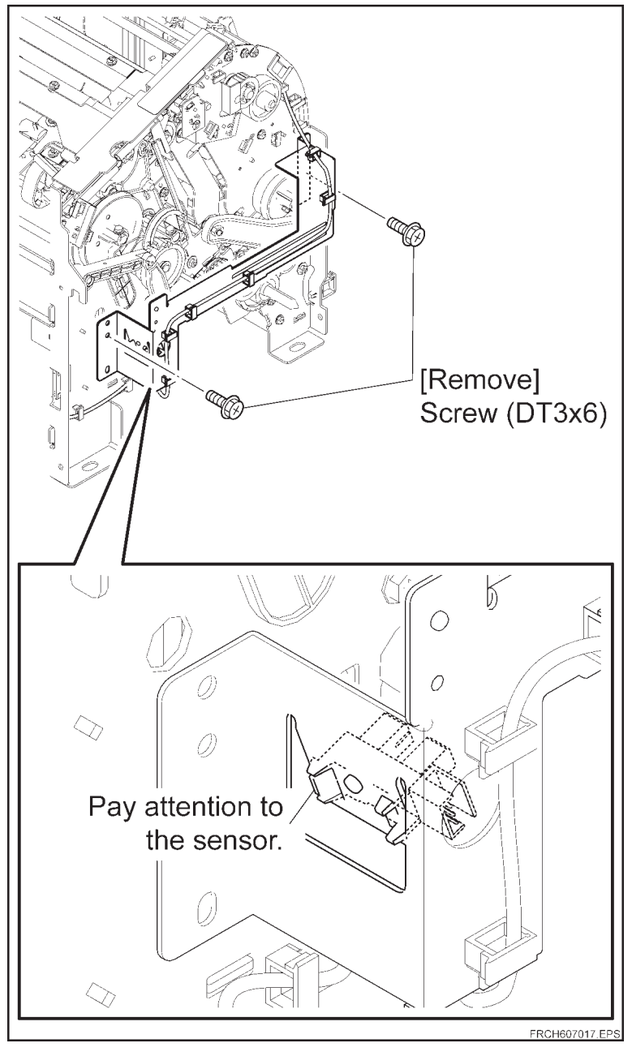
4. **Release the clamps.**



5. **Remove the screws.**

◆ ***NOTES*** ◆

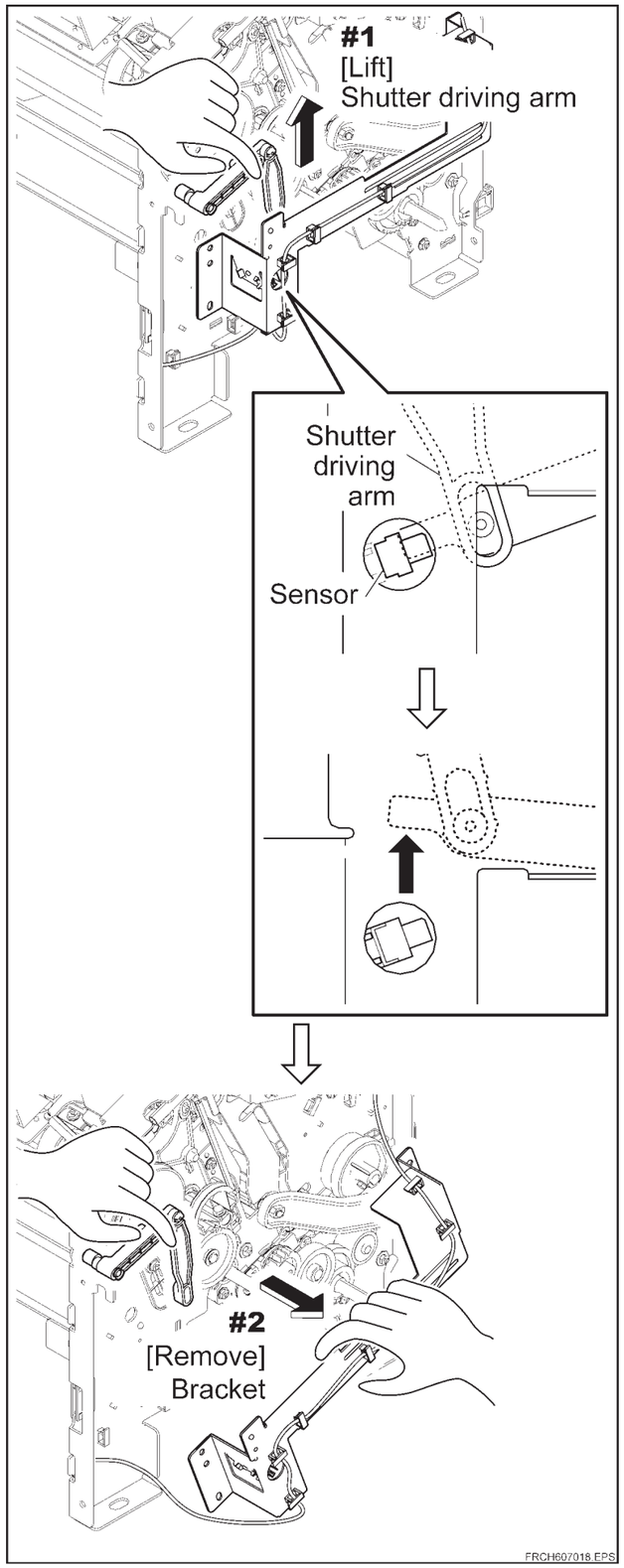
- *Do not remove the bracket after the screws are removed. If the bracket is removed in this state, the sensor installed inside the bracket might get damaged.*
- *If the bracket lowers and disengages after the screws are removed, the procedure 6 is not necessary. Proceed to the procedure 7.*



6. **Remove the bracket while lifting up the shutter driving arm.**

◆ ***NOTES*** ◆

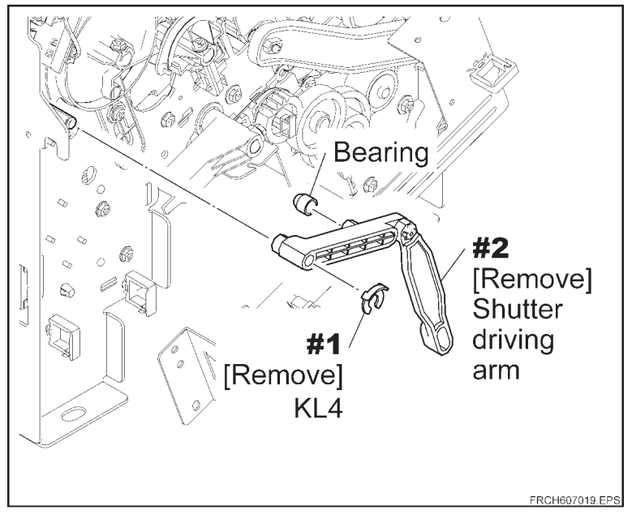
- *Always remove the bracket with the shutter driving arm lifted up. Otherwise, the sensor installed on the bracket might interfere with the shutter driving arm, resulting in the damage of the sensor.*
- *The removed bracket has the cable left attached. Exercise care not to damage the cable.*



7. **Remove the KL clip, and remove the shutter driving arm.**

◆ ***NOTE*** ◆

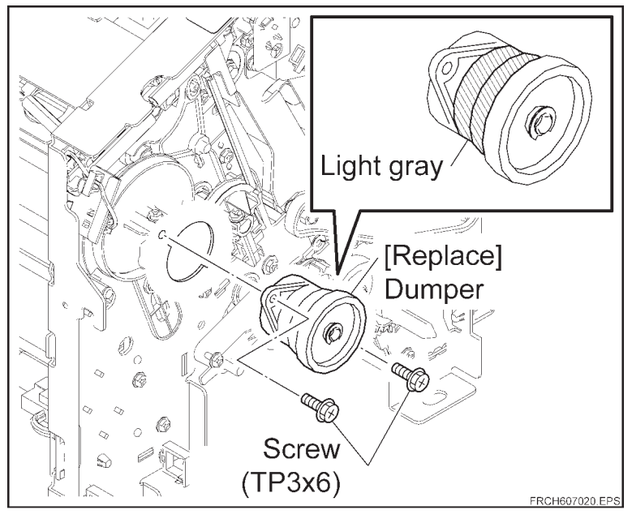
When the shutter driving arm is removed, the bearing installed inside the arm might drop. Exercise care not to miss the bearing.



8. **Replace the dumper (reference side).**

◆ ***NOTE*** ◆

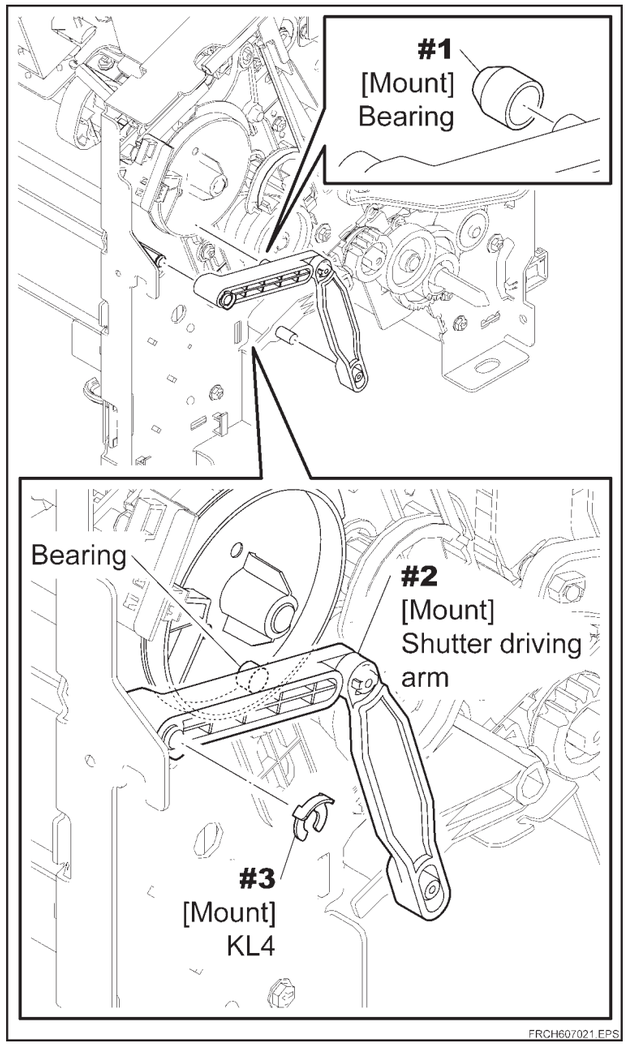
The dumpers on the reference side and the opposite reference side are different in color. Put on the dumper with a light gray barrel on the reference side.



9. **Install the bearing inside the shutter driving arm. Then mount the shutter driving arm and the KL clip.**

◆ ***NOTES*** ◆

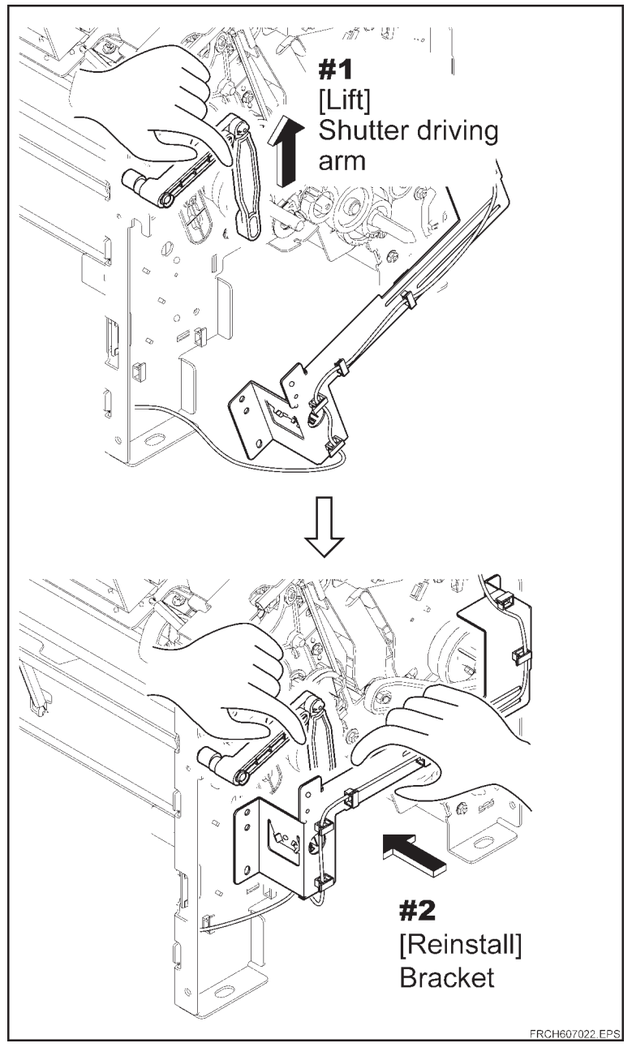
- *Pay attention to the orientation of mounting the bearing.*
- *Mount the shutter driving arm and the bearing in place referring to the figure.*



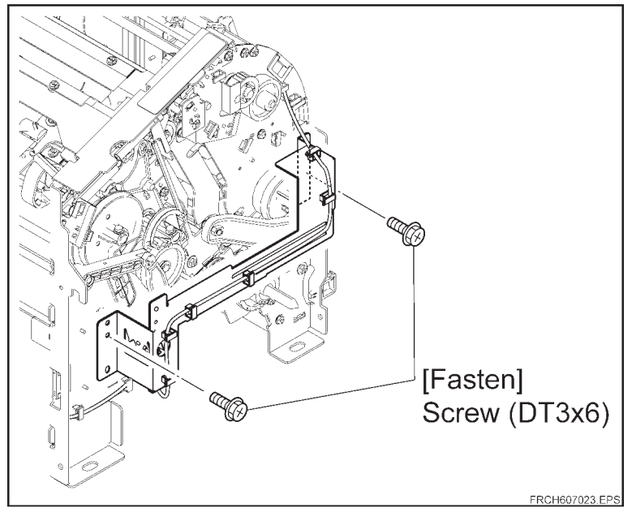
10. **Reinstall the bracket while lifting up the shutter driving arm.**

◆ NOTE ◆

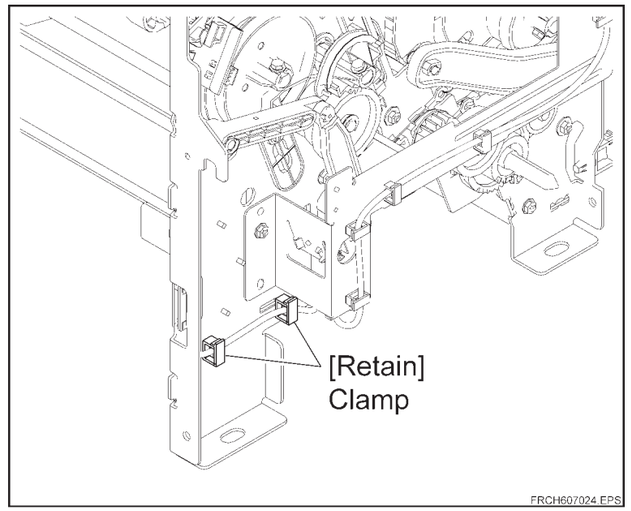
Always install the bracket with the shutter driving arm lifted up. Otherwise, the sensor installed on the bracket might interfere with the shutter driving arm, resulting in the damage of the sensor.



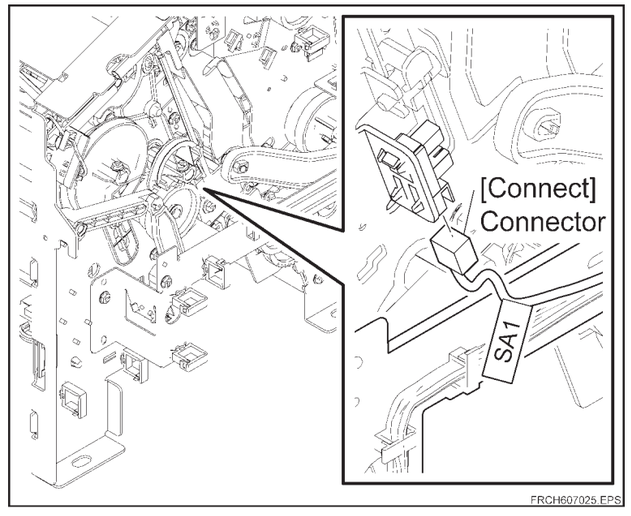
11. **Reinstall the screws.**



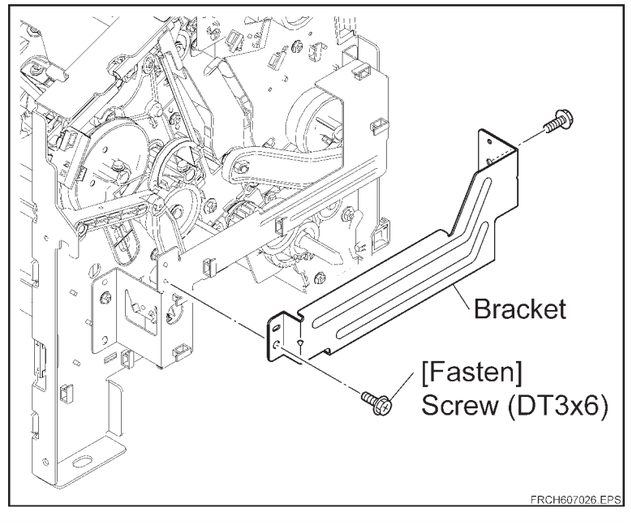
12. **Retain the cable with the clamp.**



13. **Connect the connector.**

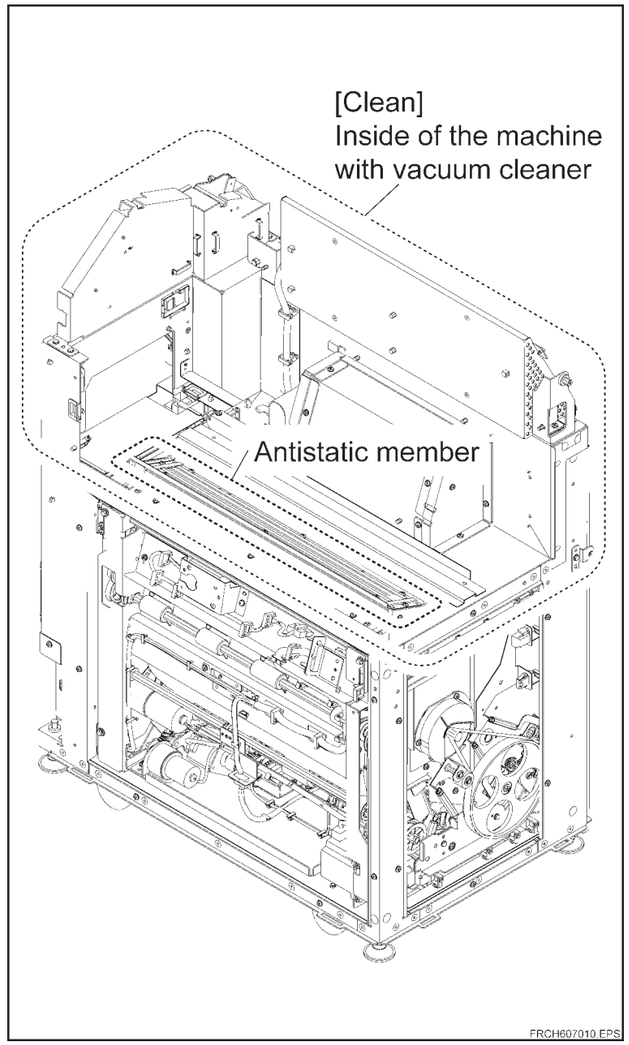


14. **Reinstall the bracket.**



7.12 Cleaning inside the Machine and the Antistatic Member

1. **Clean the inside of the machine and the antistatic member with a vacuum cleaner to remove dust entering from the outside of the machine.**

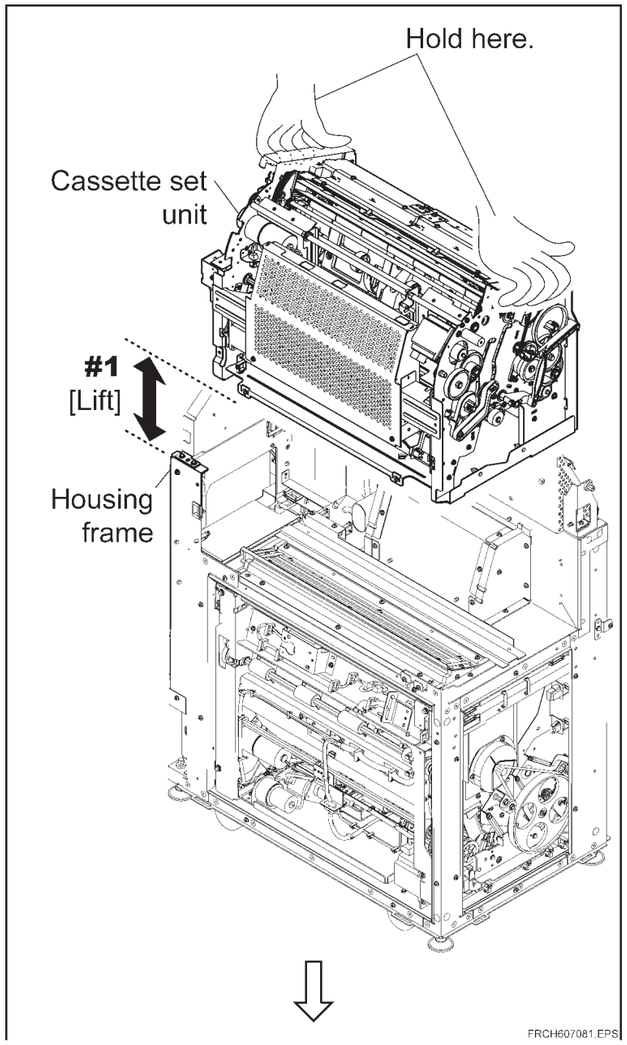


7.13 Reinstalling the Cassette Set Unit

◆ *NOTE* ◆

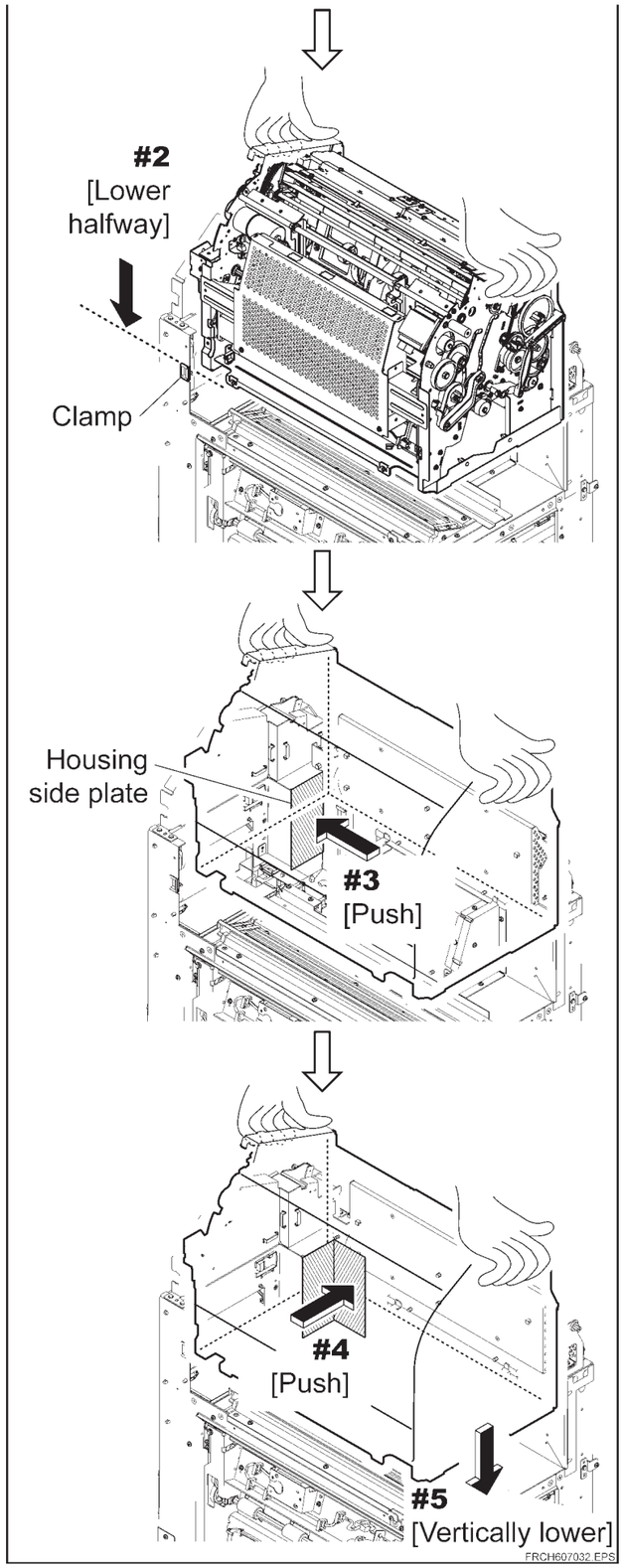
Since the cassette set unit is a heavy object, be careful about the following points when removing, reinstalling and moving.
- Secure a sufficient working space before the operation.
- Hold the position where the "Hold here" label is applied.
- Lift the unit in a natural posture.

1. **Hold the cassette set unit on the positions indicated in the figure. Lift the cassette set unit above the housing frame, and lower it halfway with the housing clamp as a guide. Push the unit against the left-hand and then inner sides of the housing in this order, and vertically lower the unit for reinstallation.**

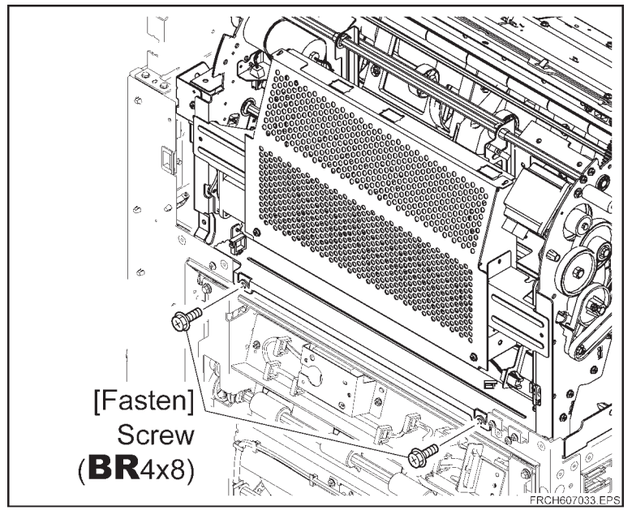


◆ *NOTES* ◆

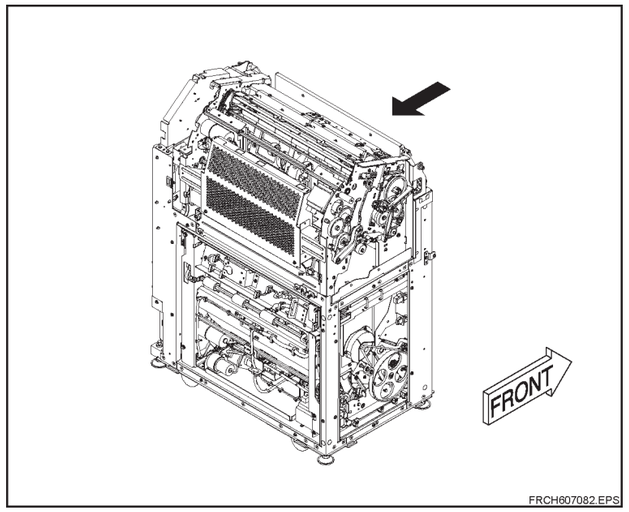
- *Always lift the cassette set unit above the housing frame before reinstalling. If the cassette set unit has not been lifted high enough, the unit might come into contact with the housing, causing the damage.*
- *Be sure to push the unit against the left-hand and then inner side of the housing in this order. Otherwise, the cassette set unit cannot be reinstalled in place, and the housing cable might get* damaged.



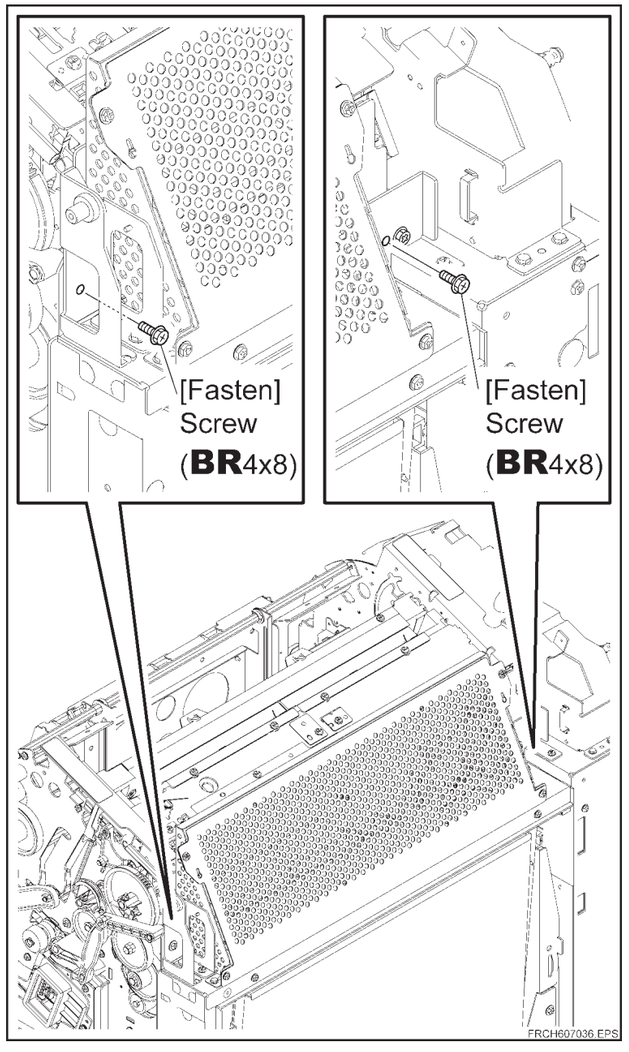
2. **Reinstall the retaining screws of the cassette set unit.**



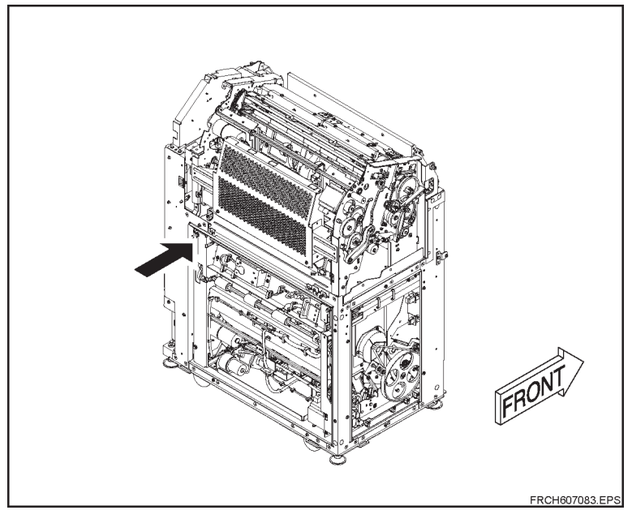
3. **Take the procedure 4 from the direction indicated by the arrow in the figure.**



4. **Reinstall the retaining screws of the cassette set unit.**



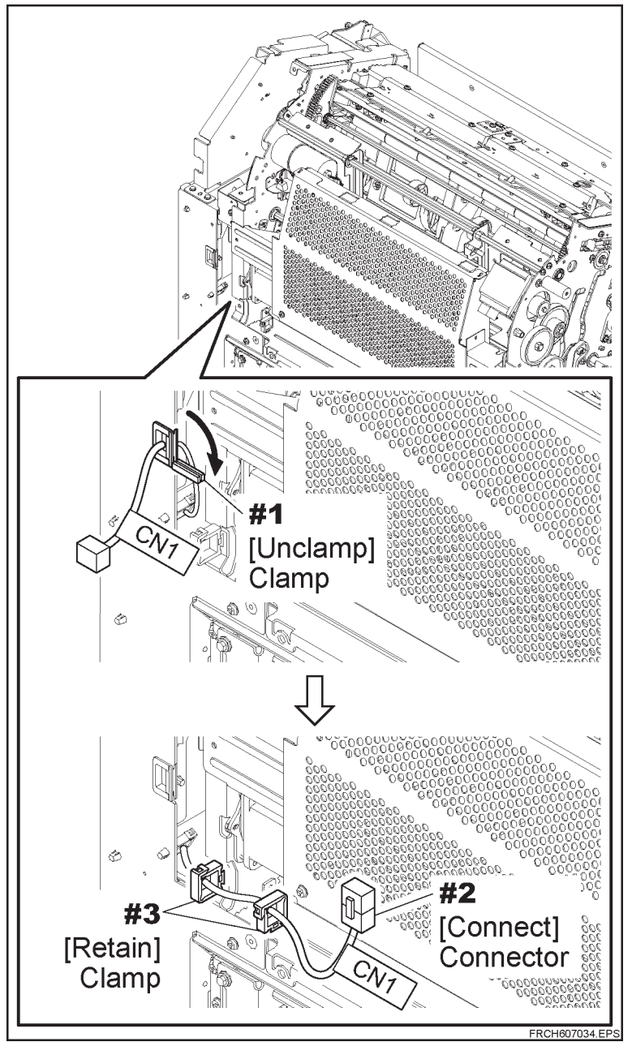
5. **Take the procedures 6 and 7 from the direction indicated by the arrow in the figure.**



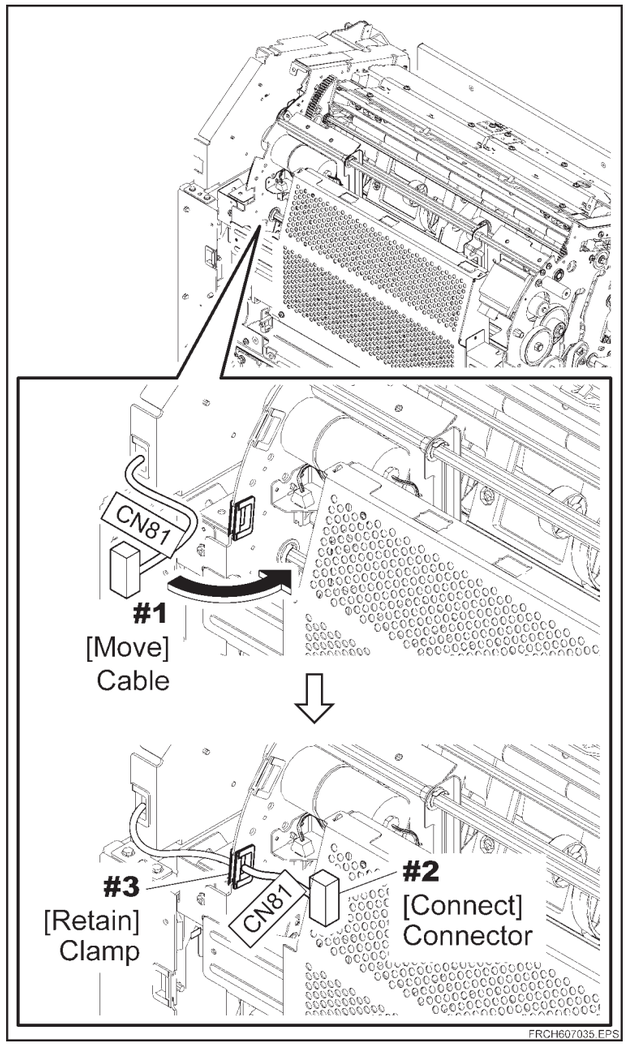
6. **Unclamp the clamp, connect the connector, and retain the cable with the clamp.**

◆ ***NOTE*** ◆

As the working space is small, exercise care not to get injured by peripheral components when connecting the connector.

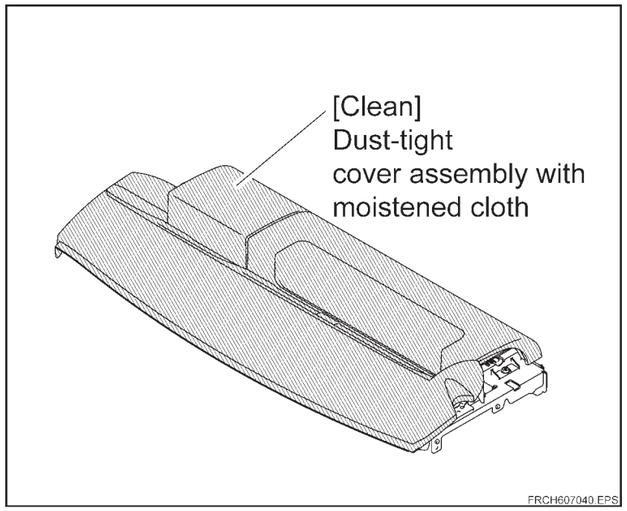


7. **Connect the connector, and retain the cable with the clamp.**

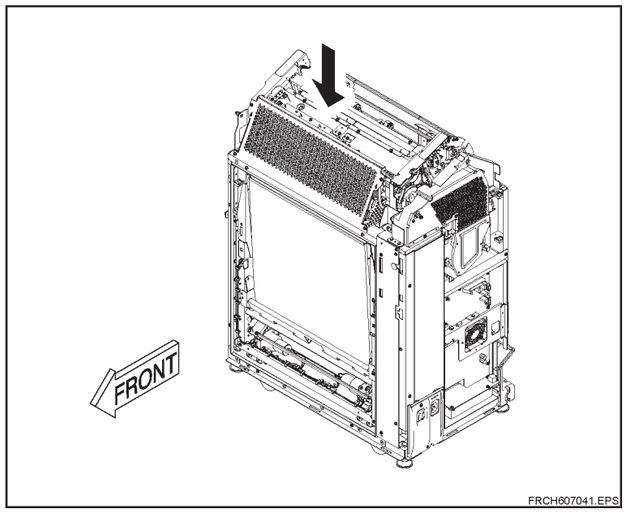


7.14 Cleaning the Dust-Tight Cover Assembly

1. **Clean the dust-tight cover assembly with a moistened cloth.**



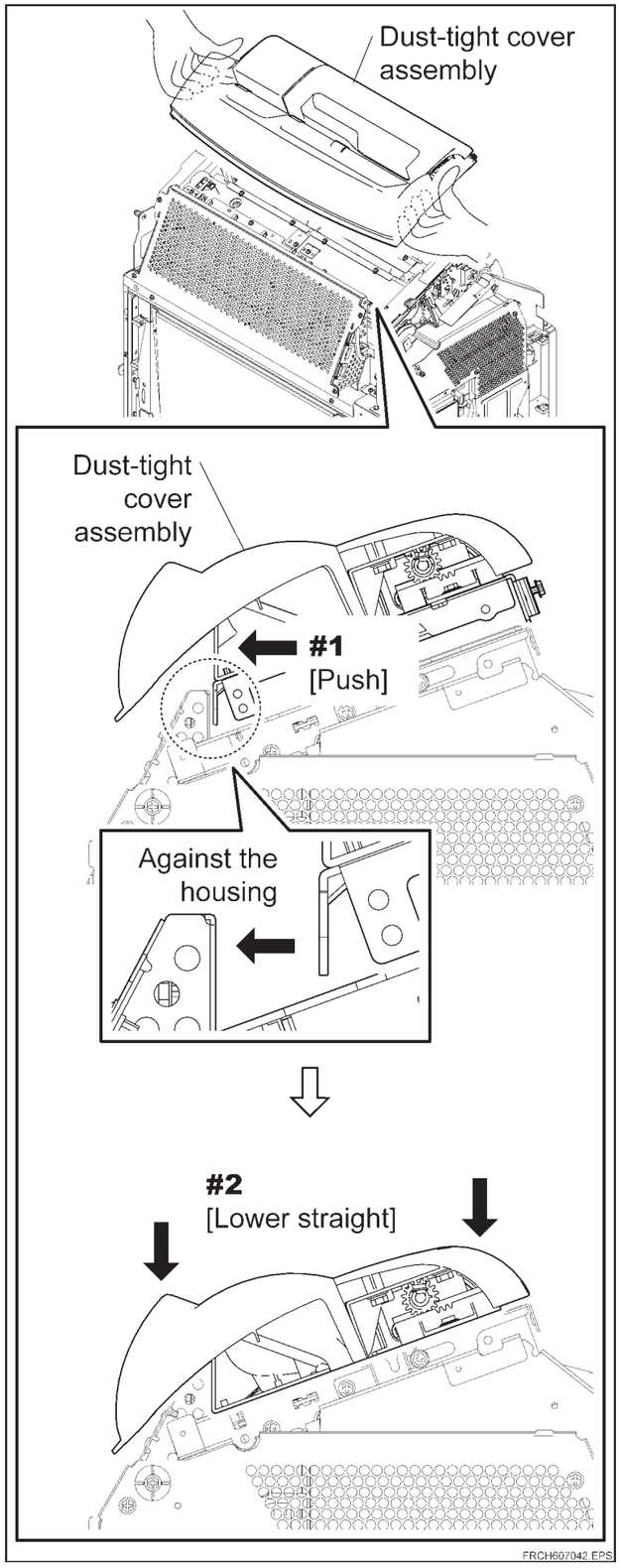
2. **Take the procedure 3 from the direction indicated by the arrow in the figure.**



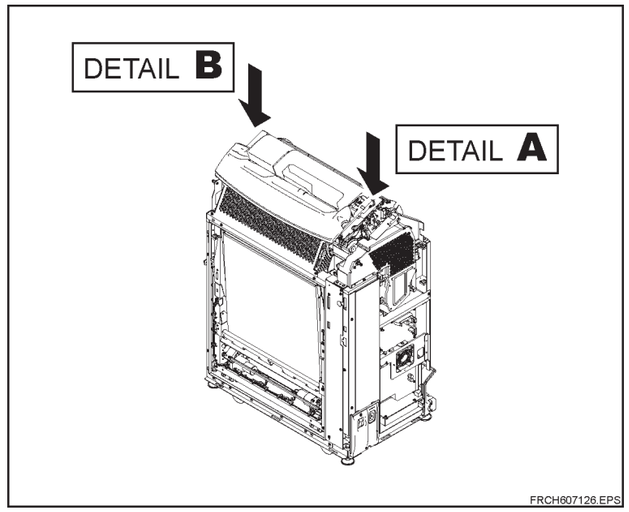
3. **Hold the dust-tight cover assembly on the positions indicated in the figure, and push the assembly against the housing. Lower the assembly straight down not to tilt it and reinstall.**

◆ *NOTE* ◆

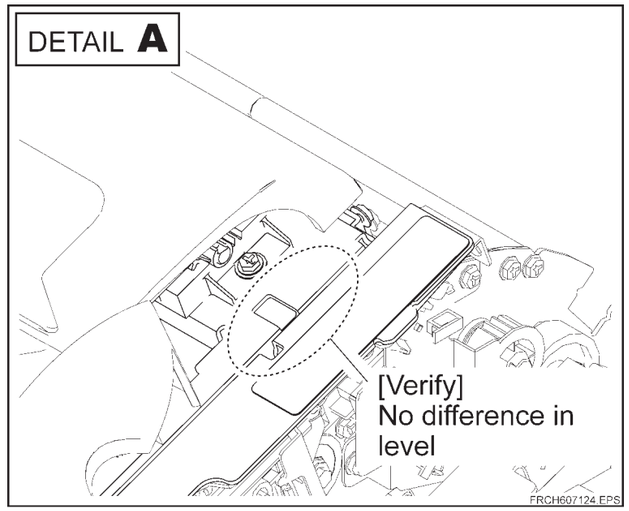
Be sure to lower the dust-tight cover assembly straight down without tilting it, and reinstall. Otherwise, the sensor or the gear might get damaged.



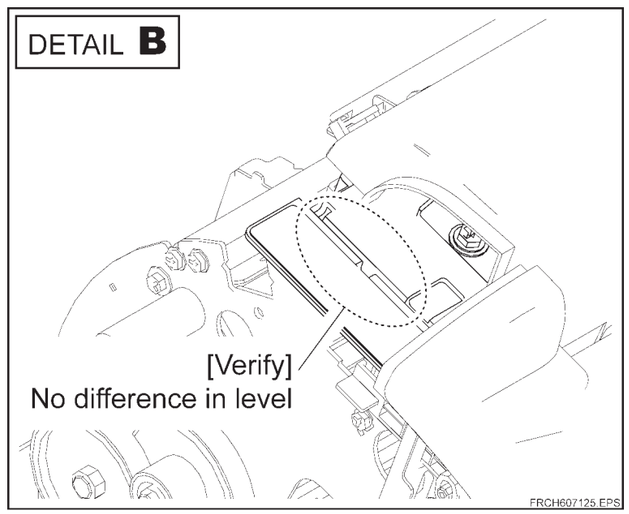
4. **Take the procedures 5 and 6 from the direction indicated by the arrow in the figure.**



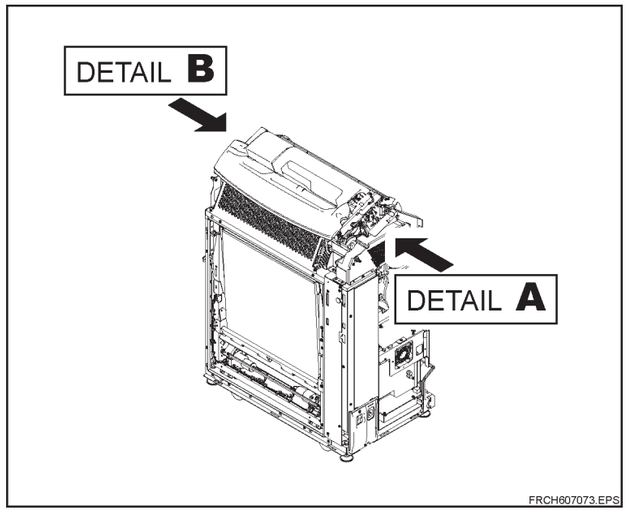
5. **Check to make sure that there is no difference in level between the dust-tight cover assembly and the side plate of the cassette set unit from the direction instructed in DETAIL A.**



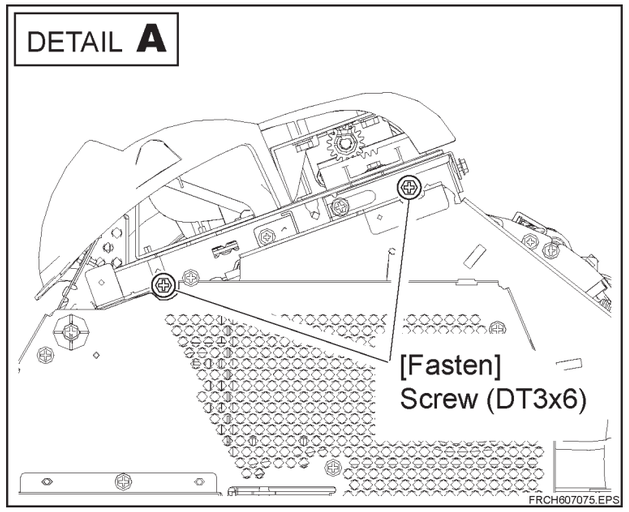
6. **Check to make sure that there is no difference in level between the dust-tight cover assembly and the side plate of the cassette set unit from the direction instructed in DETAIL B.**



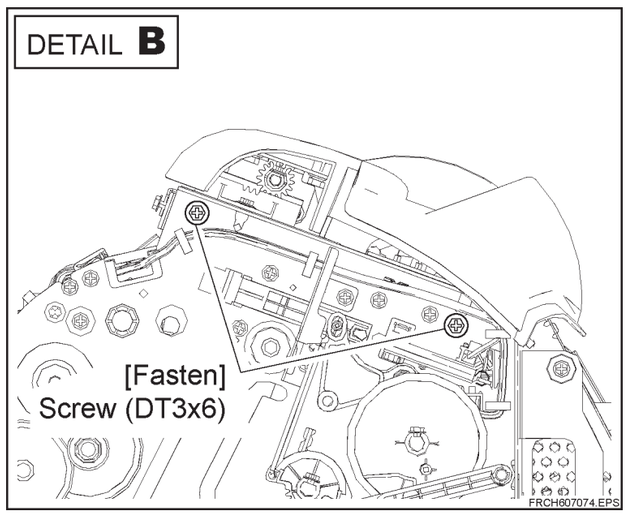
7. **Take the procedures 8 and 9 from the direction indicated by the arrow in the figure.**



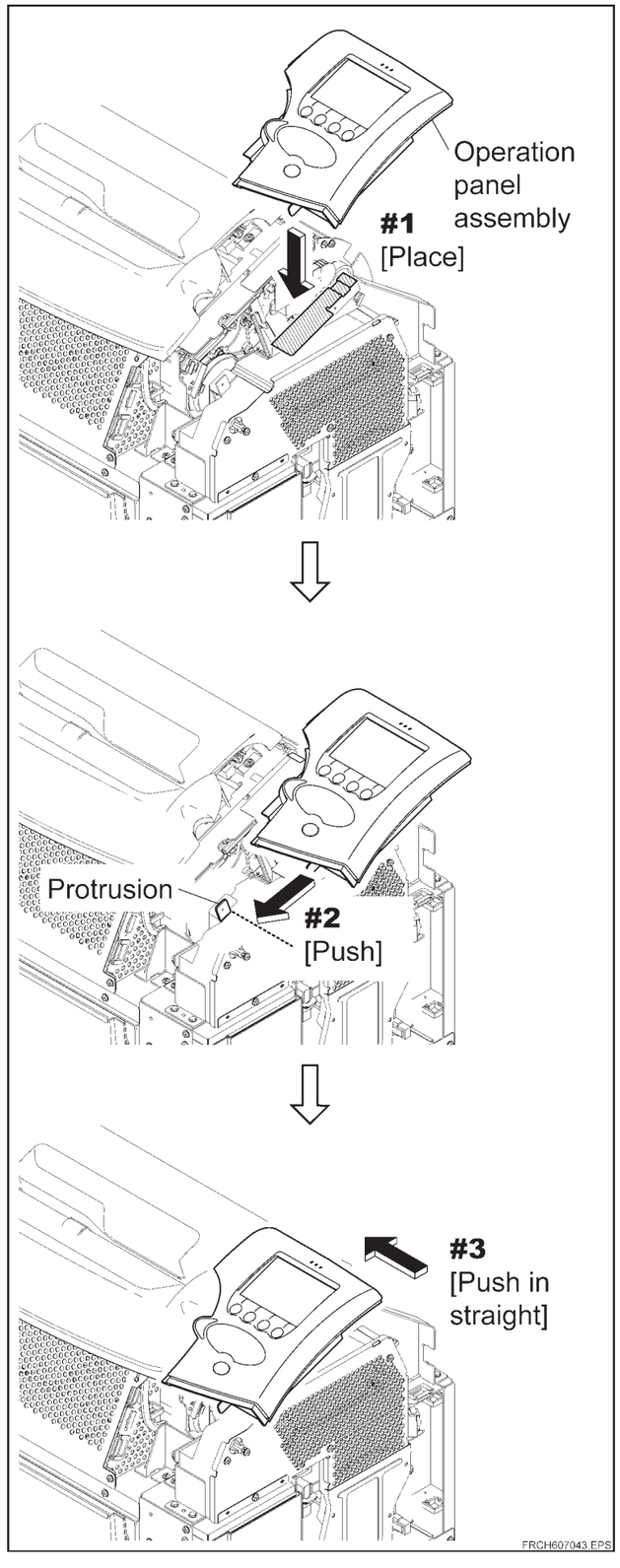
8. **Reinstall the retaining screws of the dust-tight cover assembly from the direction instructed in DETAIL A.**



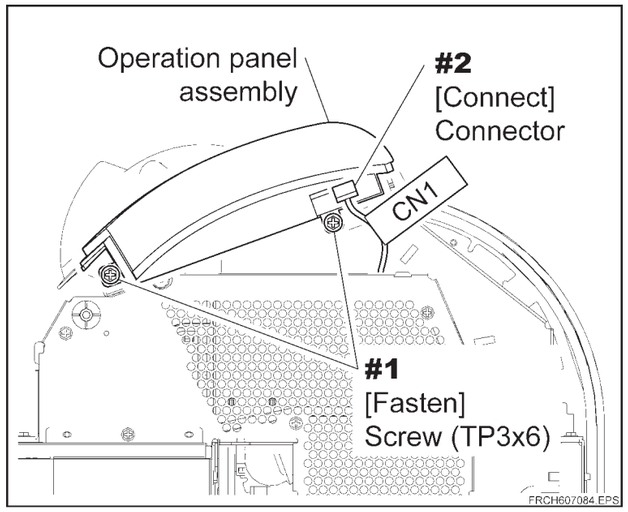
9. **Reinstall the retaining screws of the dust-tight cover assembly from the direction instructed in DETAIL B.**



10. **Put the operation panel assembly on the shaded portion in the figure, and push it against the protrusion on the housing. Laterally push the operation panel assembly straight for reinstalling.**

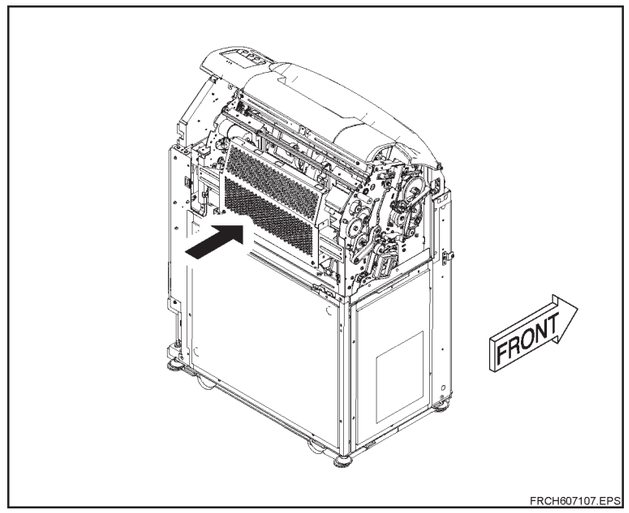


11. **Reinstall the retaining screws of the operation panel assembly, and connect the connector.**

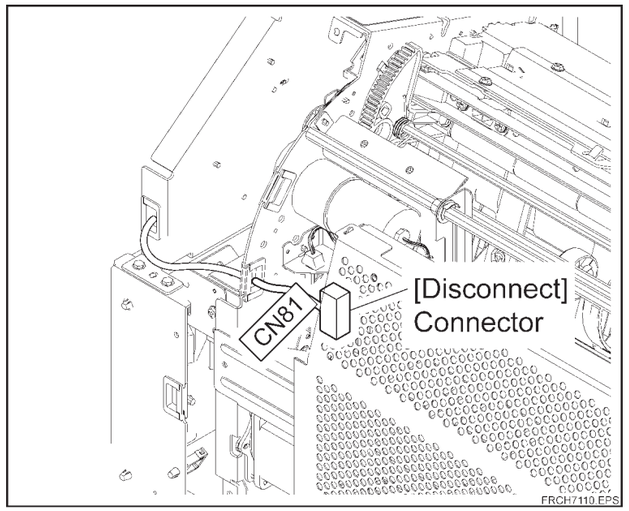


7.15 Replacing the IP Suction Pump

1. **Take the procedures from 2 to 5 from the direction indicated by the arrow in the figure.**



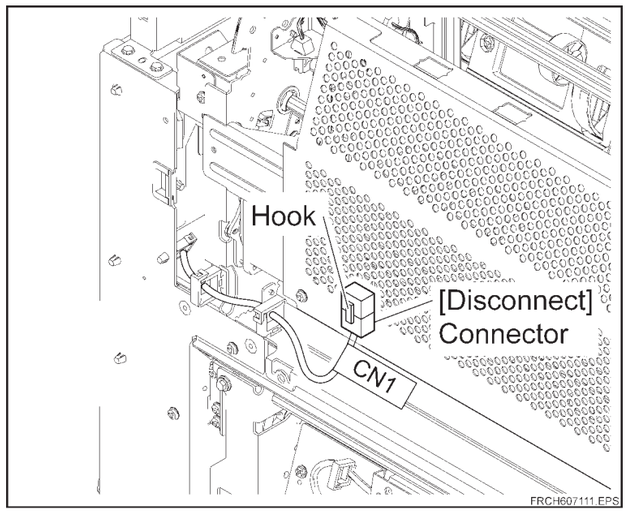
2. **Disconnect the connector.**



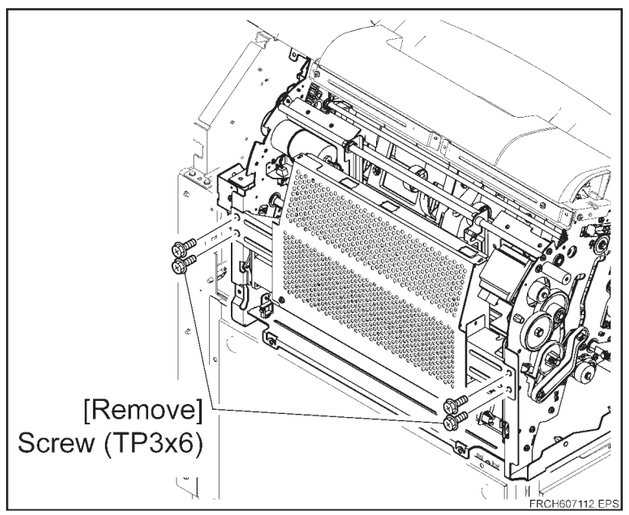
3. **Disconnect the connector while pushing the hook of the connector.**

◆ ***NOTE*** ◆

As the working space is small, exercise care not to get injured by peripheral components when disconnecting the connector.



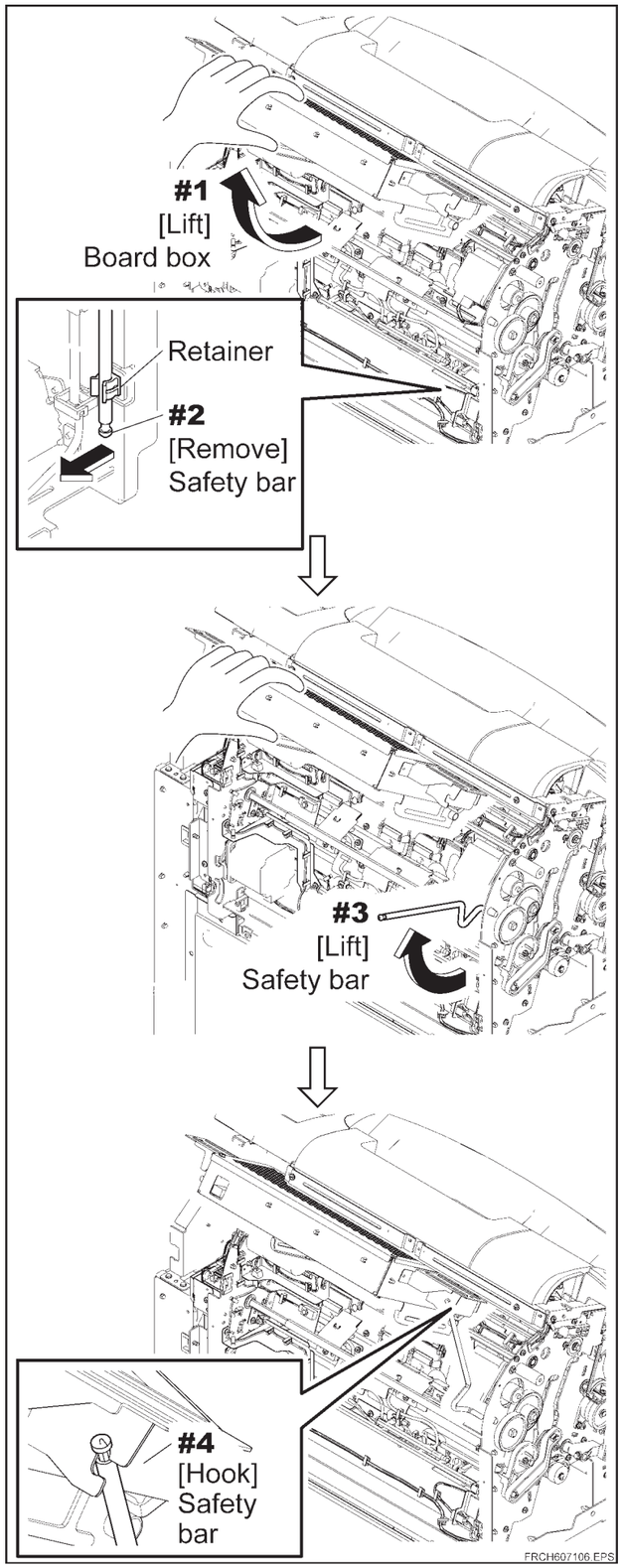
4. **Remove the screws.**



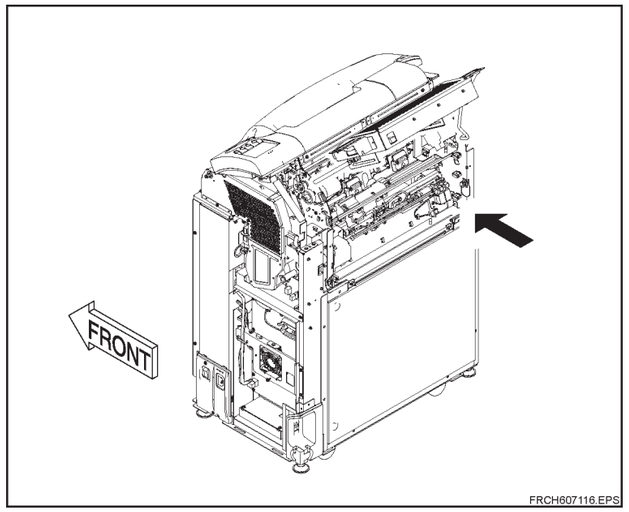
5. **Lift the board box and remove the safety bar from the retainer. Lift the safety bar and hook it on the bracket of the board box.**

◆ ***NOTE*** ◆

Be sure to hook the safety bar on the bracket of the board box to prevent the board box from falling down. Otherwise, the board box might fall down, hurting the operator.



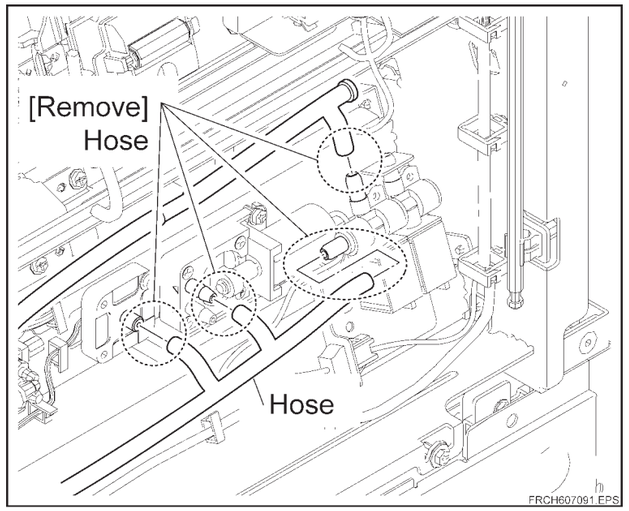
6. **Take the procedures from 7 to 15 from the direction indicated by the arrow in the figure.**



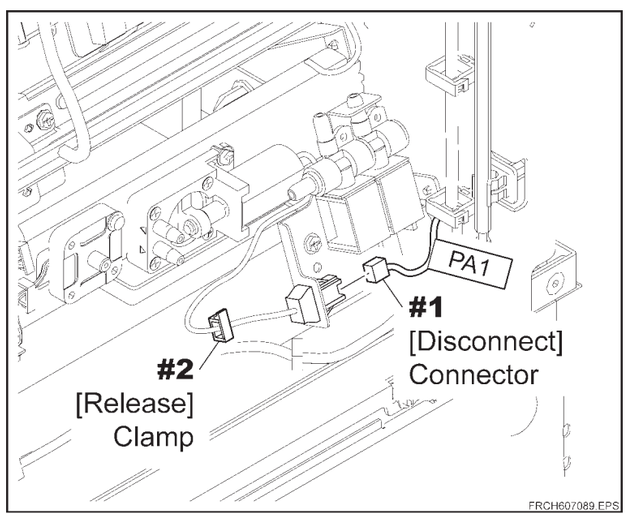
7. **Remove the hose.**

◆ ***NOTE*** ◆

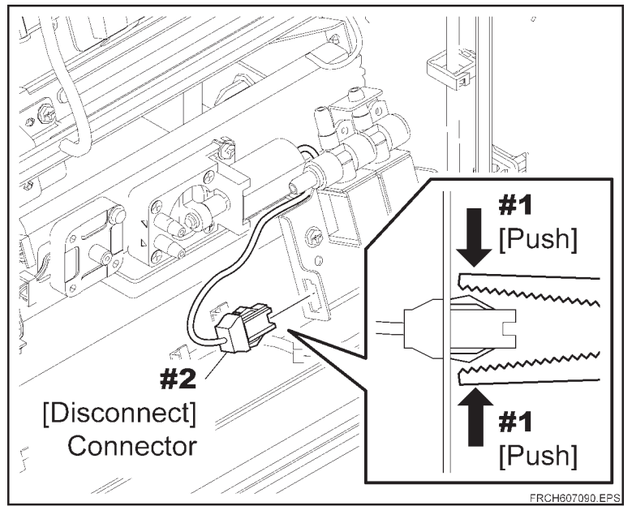
Exercise care not to damage the hose when removing it.



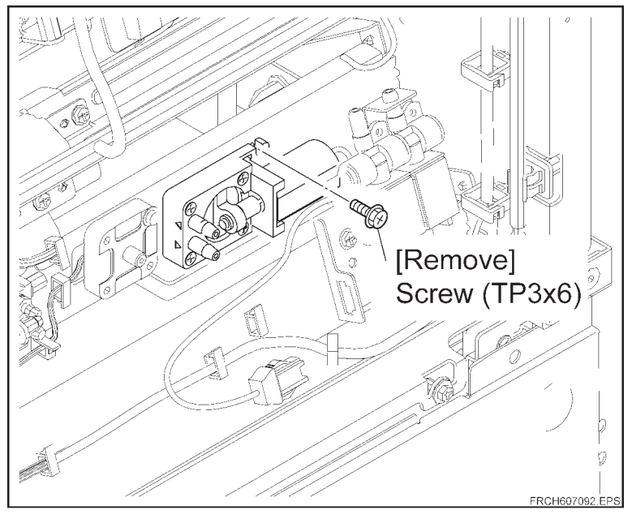
8. **Disconnect the connector, and unclamp the clamp.**



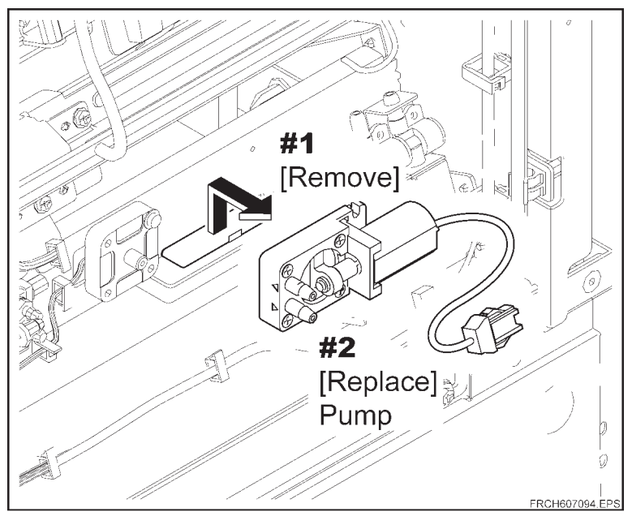
9. **While pushing the hook of the connector with the long-nose pliers, disconnect the connector from the bracket.**



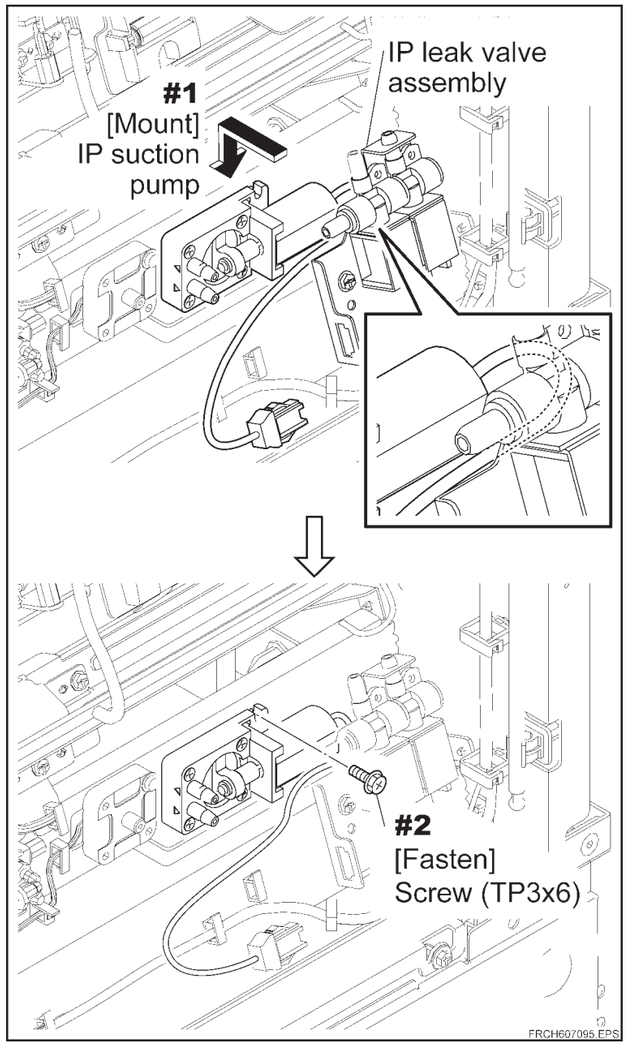
10. **Remove the retaining screw of the IP suction pump.**



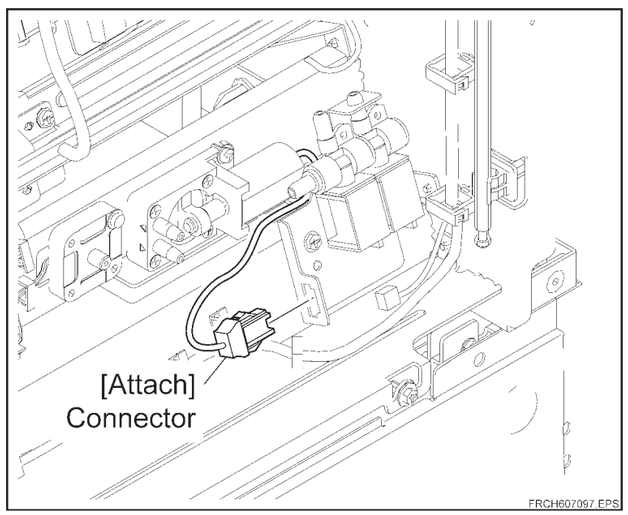
11. **Remove the IP suction pump and replace.**



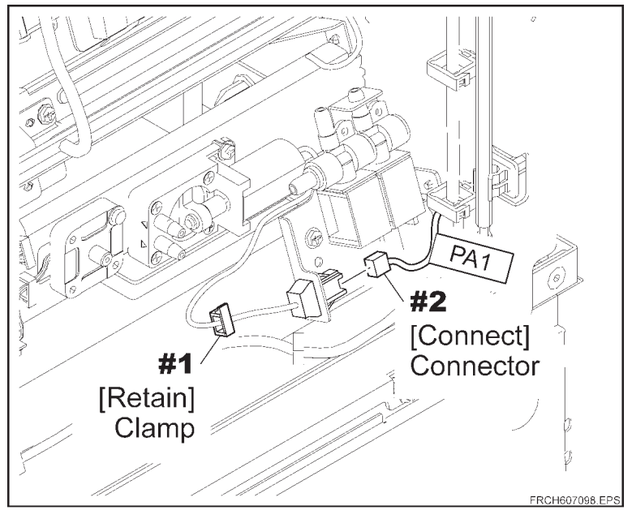
12. **Install the IP suction pump so that the IP suction cable pump is located behind the IP leak valve assembly. Put on the retaining screw of the IP suction pump.**



13. **Attach the connector to the bracket.**



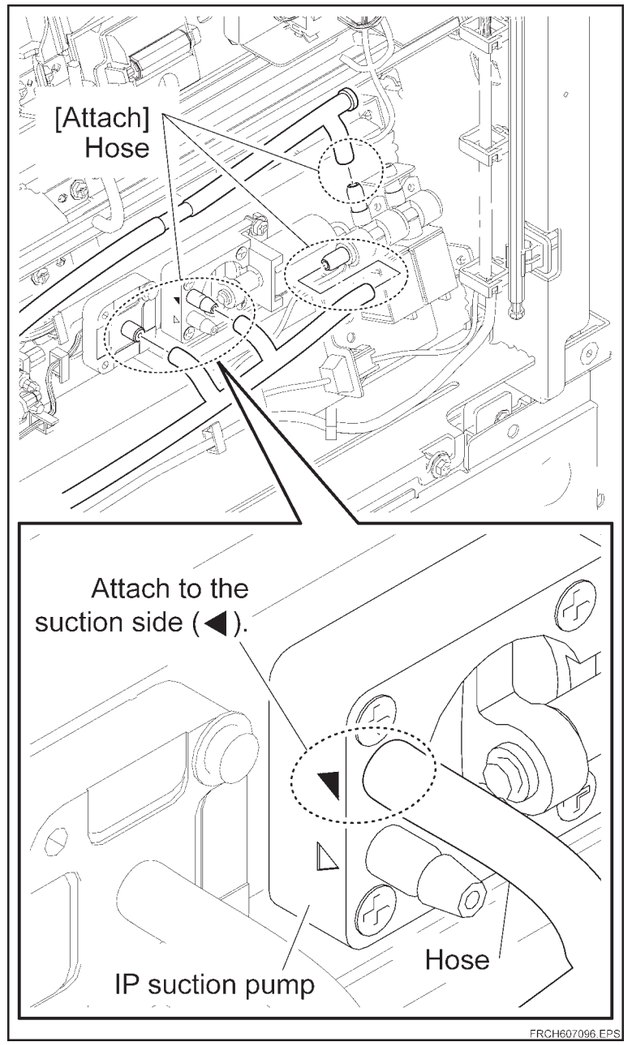
14. **Retain the cable with the clamp, and connect the connector.**



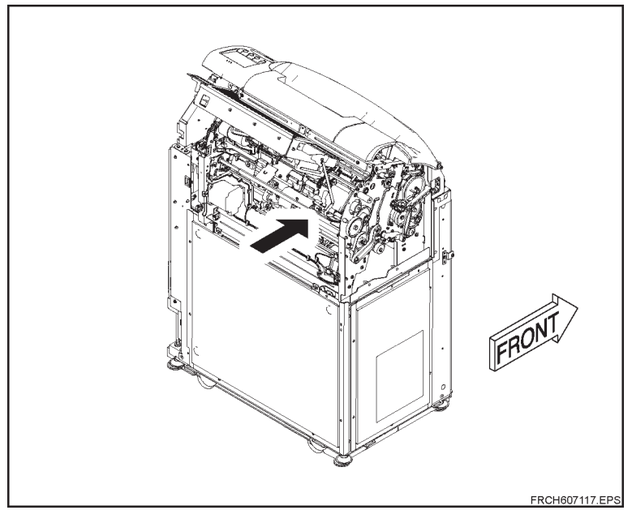
15. **Attach the hose.**

◆ ***NOTES*** ◆

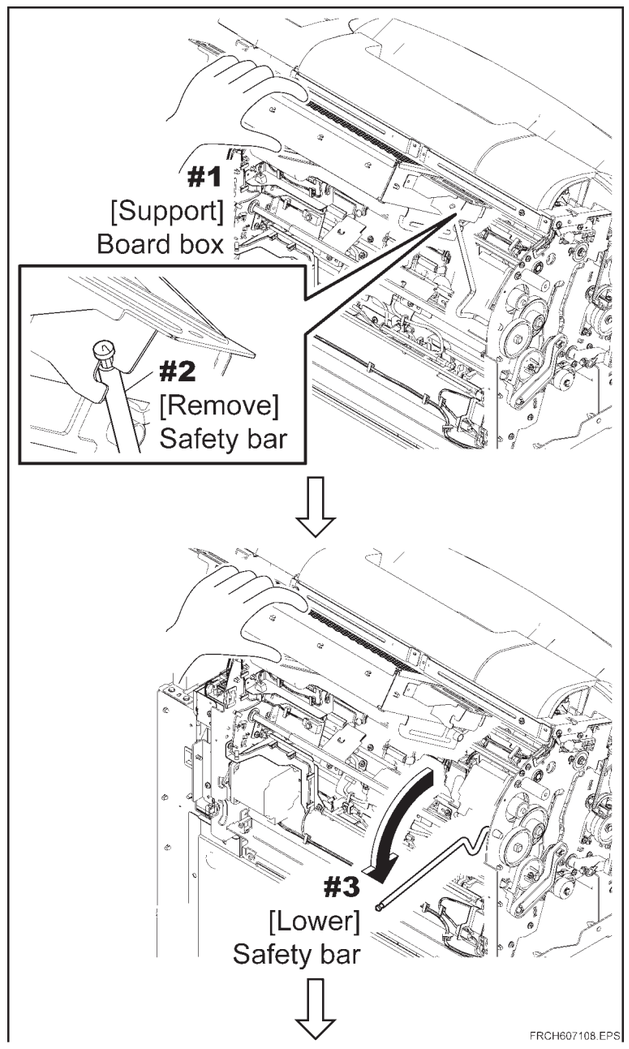
- *Be sure to attach the hose to the suction side of the IP suction pump.*
- *Insert the hose to the innermost region.*

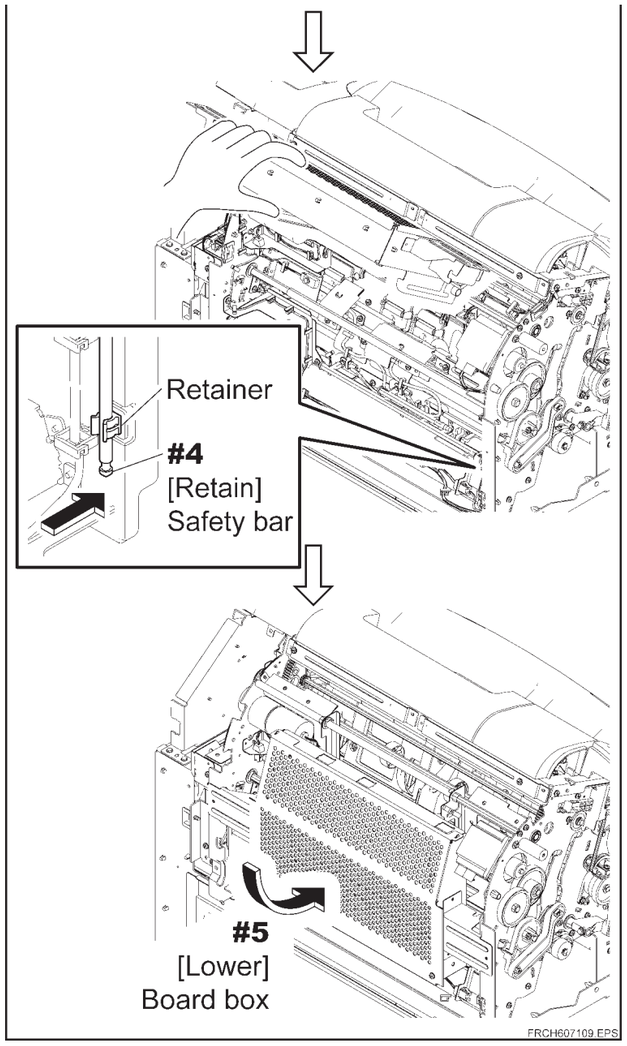


16. **Take the procedures from 17 to 20 from the direction indicated by the arrow in the figure.**

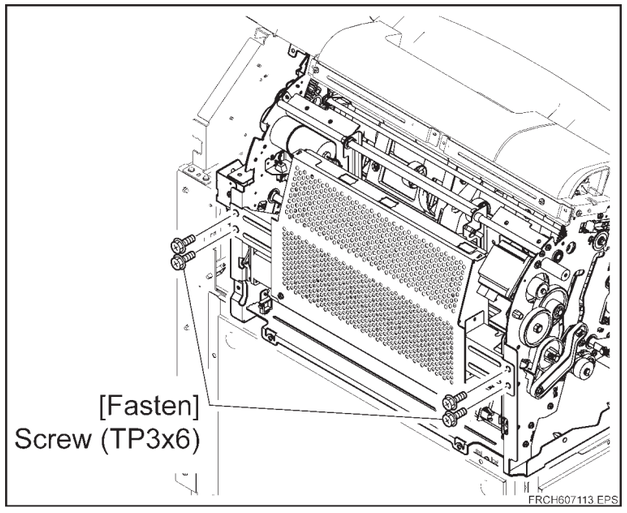


17. **While holding the position indicated in the figure and supporting the board box, remove the safety bar. Lower the safety bar and fix to the retainer. Then lower the board box.**





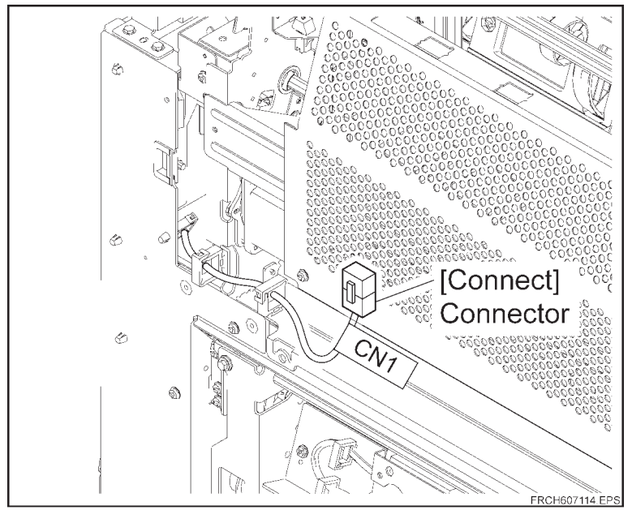
18. **Reinstall the screws.**



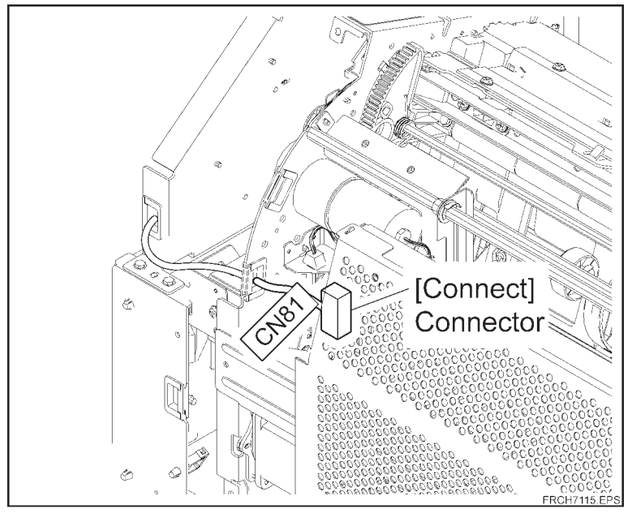
19. **Connect the connector.**

◆ ***NOTE*** ◆

As the working space is small, exercise care not to get injured by peripheral components when connecting the connector.



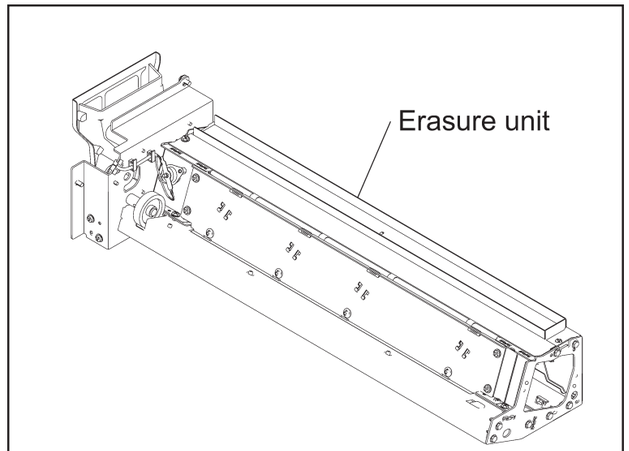
20. **Connect the connector.**



8. Erasure Unit

8.1 Removing the Filter

1. **Place the erasure unit in the orientation indicated in the figure.**



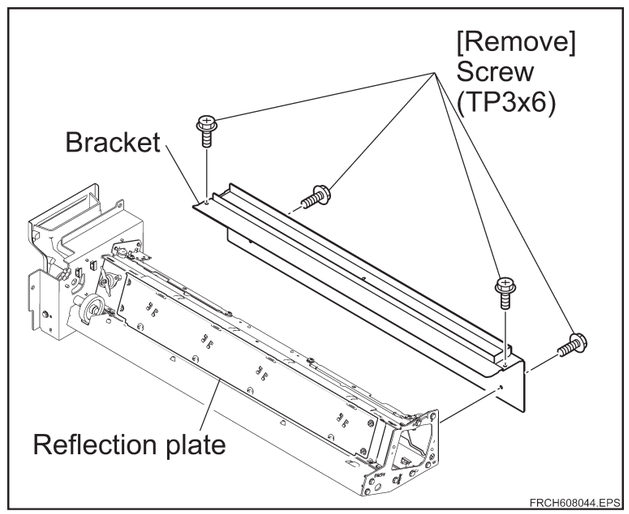
FRCH608062.EPS

2. **Remove the bracket.**

◆ ***NOTE*** ◆

Do not raise nor move the erasure unit, holding the reflection plate. If the reflection plate deforms, correct its warp referring to the Check, Replacements and Adjustment of Parts "6.6.3 Check/ Adjustment Procedures".

☞ ***{MC:6.6.3_Check/Adjustment Procedures}***

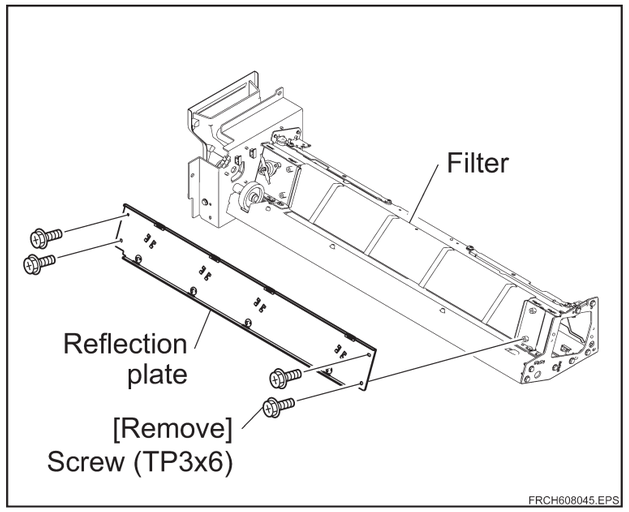


FRCH608044.EPS

3. **Remove the reflection plate.**

◆ ***NOTES*** ◆

- *Do not strongly grasp the reflection plate and the filter, when removing the reflection plate. Otherwise, the lamp located inside the filter might get damaged.*
- *Do not damage the reflection face of the reflection plate that has been removed. If it gets damaged, IP erasure might not be performed normally.*

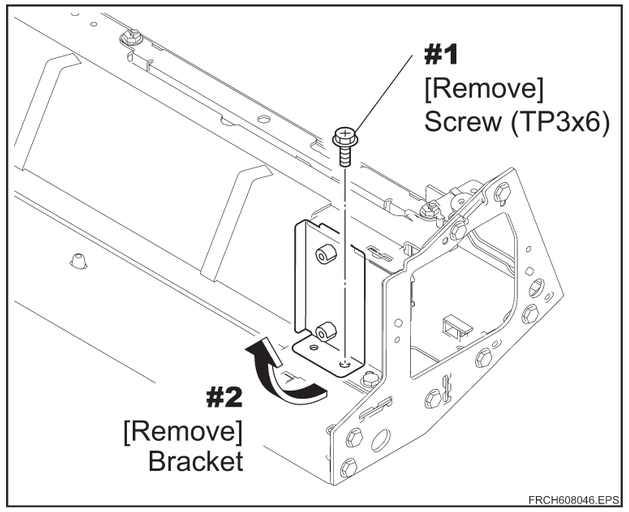


FRCH608045.EPS

4. **Remove the screws to remove the bracket.**

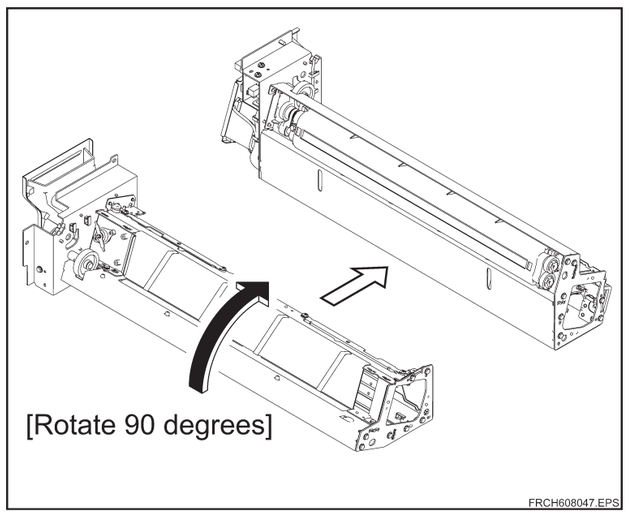
◆ ***NOTE*** ◆

Exercise care not to damage the lamp by the bracket when removing the bracket.



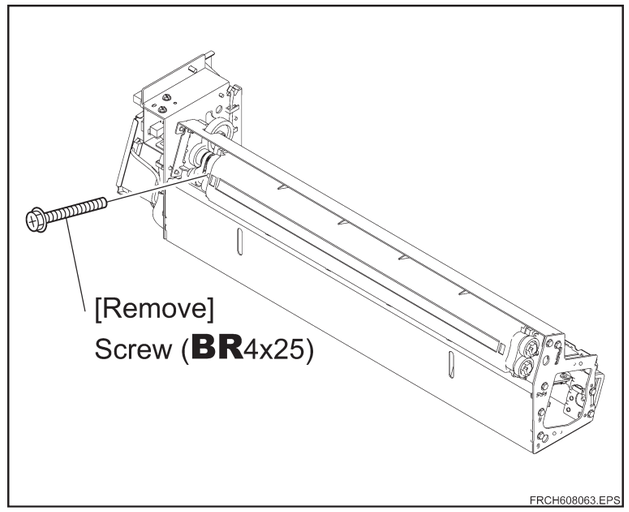
FRCH608046.EPS

5. **Place the erasure unit in the orientation indicated in the figure.**

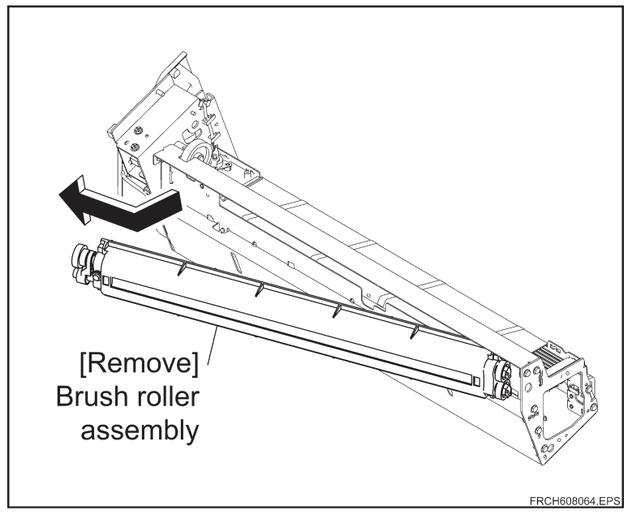


FRCH608047.EPS

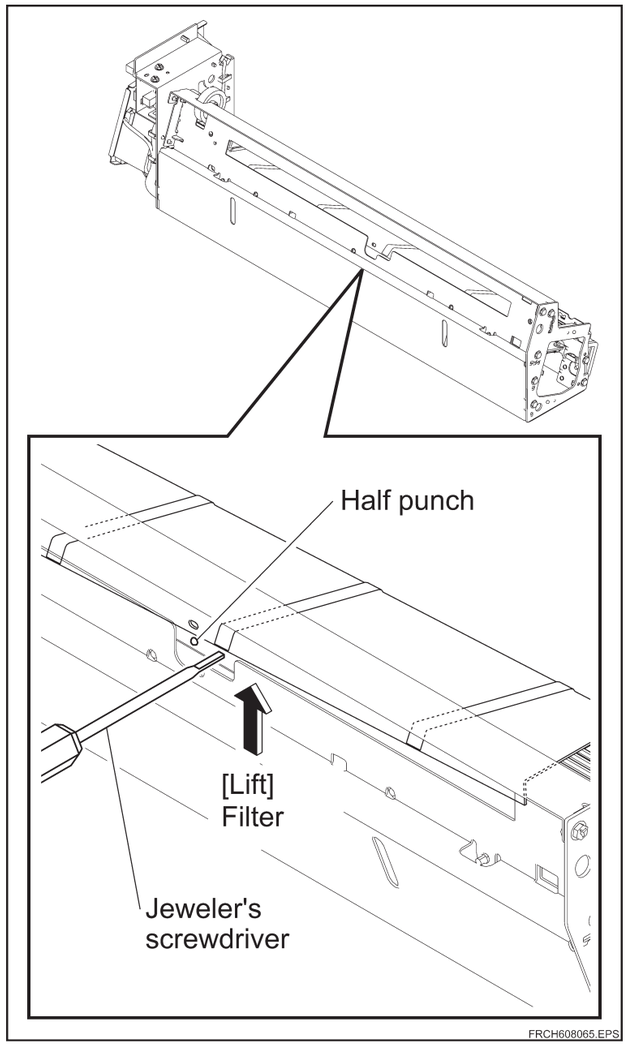
6. **Remove the screws.**



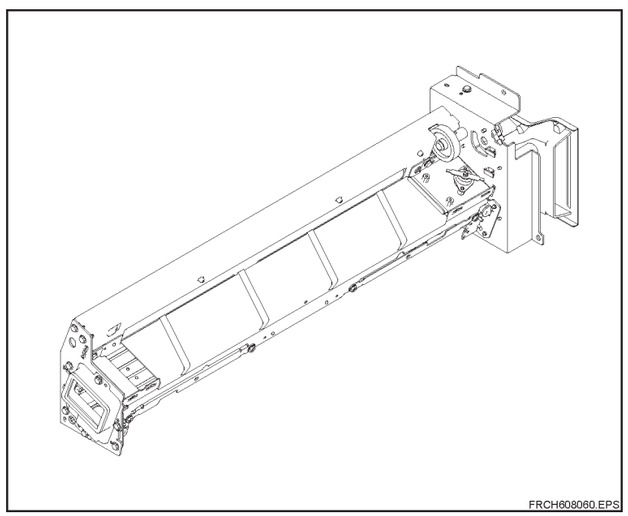
7. **Remove the brush roller assembly.**



8. **Lift the filter with a jeweler's screwdriver, and remove it from the half punch.**



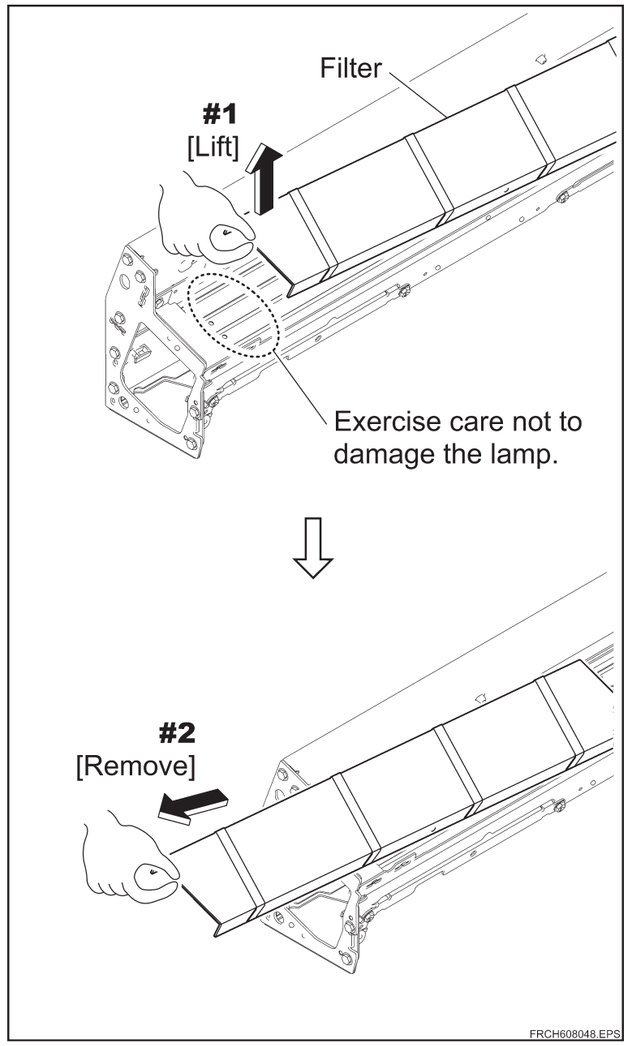
9. **Place the erasure unit in the orientation indicated in the figure.**



10. **Lift to remove the filter while watching the lamp.**

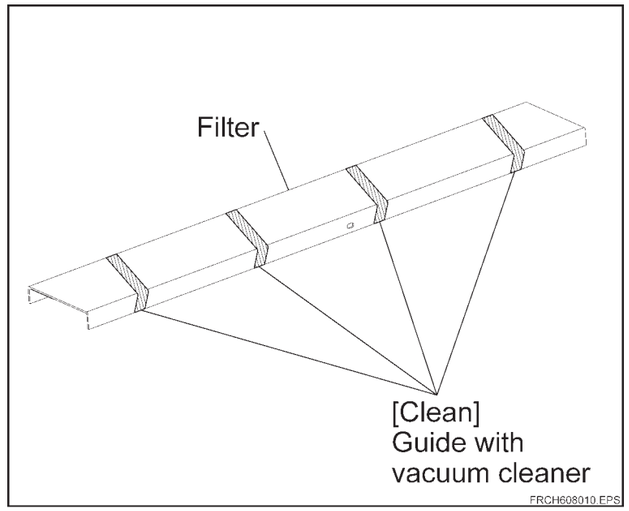
◆ ***NOTE*** ◆

Exercise care not to damage the lamp with your fingers when removing the filter.



8.2 Cleaning the Filter

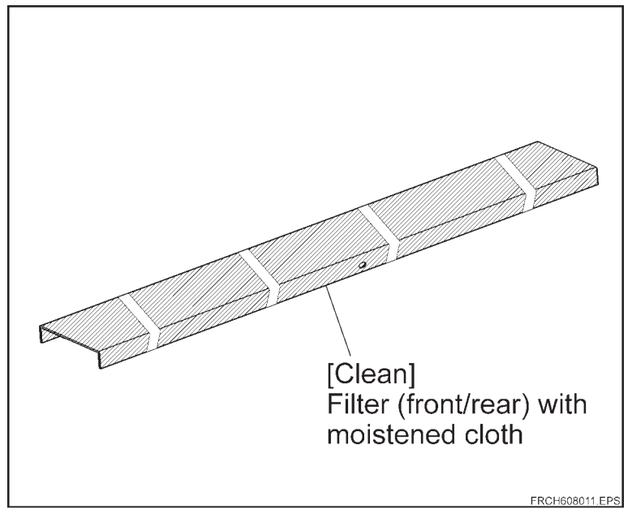
1. **Clean the guide with a vacuum cleaner.**



2. **Clean the front and the rear of the filter with a moistened cloth.**

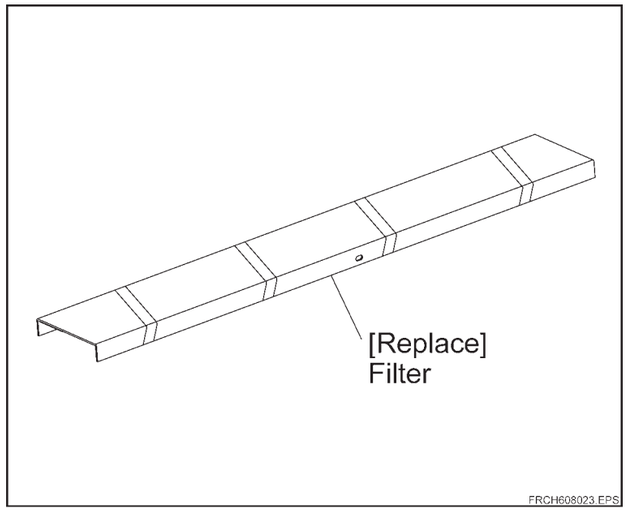
◆ *NOTES* ◆

- *Be sure to clean both the front and the rear of the filter with the moistened cloth.*
- *Exercise care not to wipe the guide with the moistened cloth. Otherwise, the guide might peel.*



8.3 Replacing the Filter

1. **Replace the filter.**

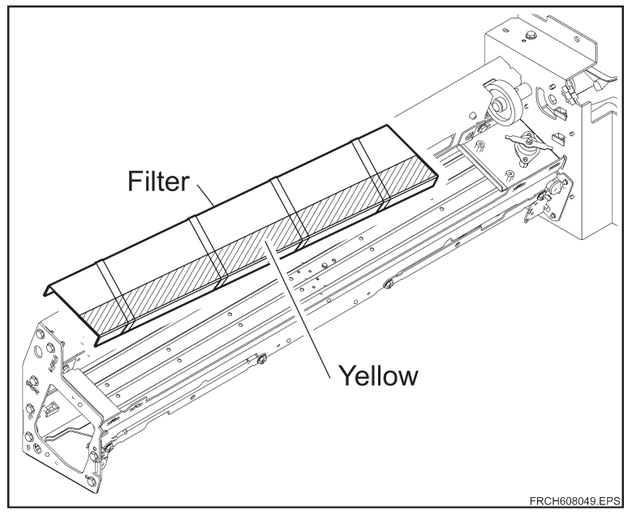


8.4 Reinstalling the Filter

1. **Check the orientation of mounting the filter.**

◇ *REFERENCE* ◇

Determine the orientation of mounting the filter by a yellow portion of the filter.

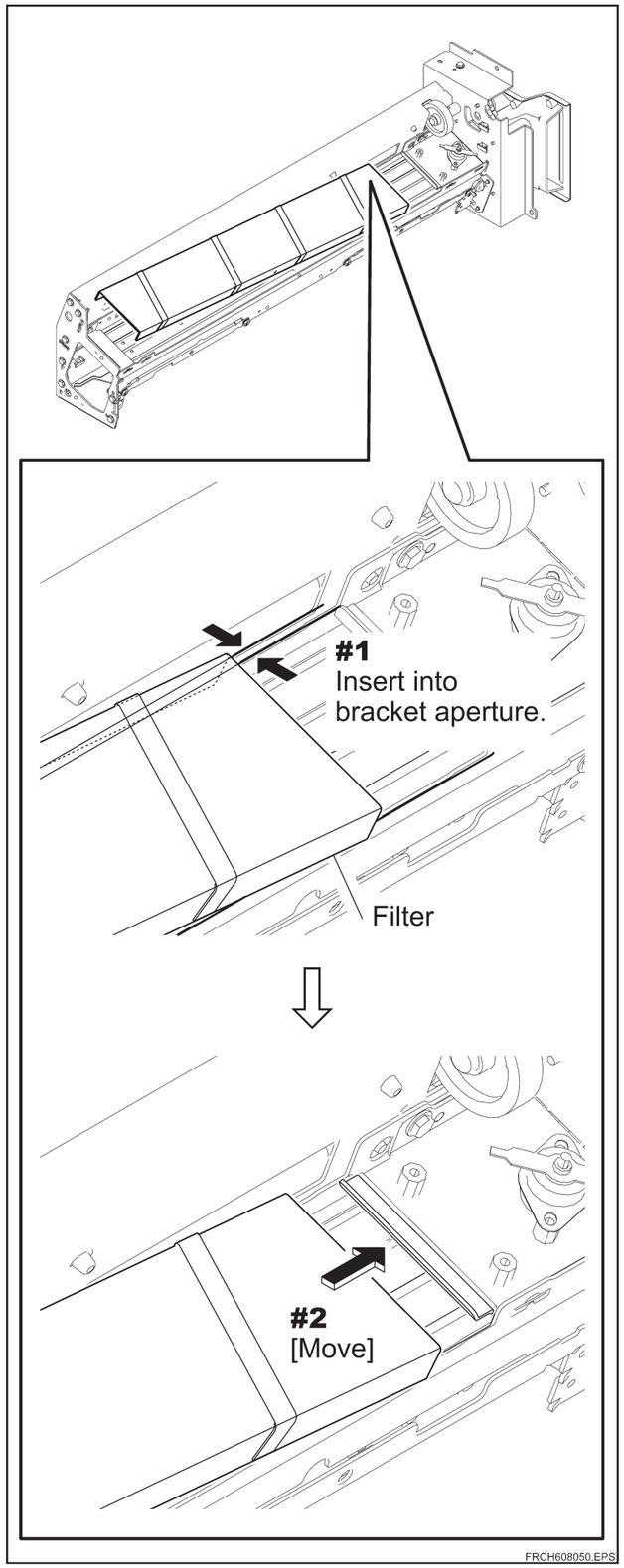


FRCH608049.EPS

2. **Insert the end of the filter into the aperture of the bracket, move it in the direction of the arrow, and reinstall the filter.**

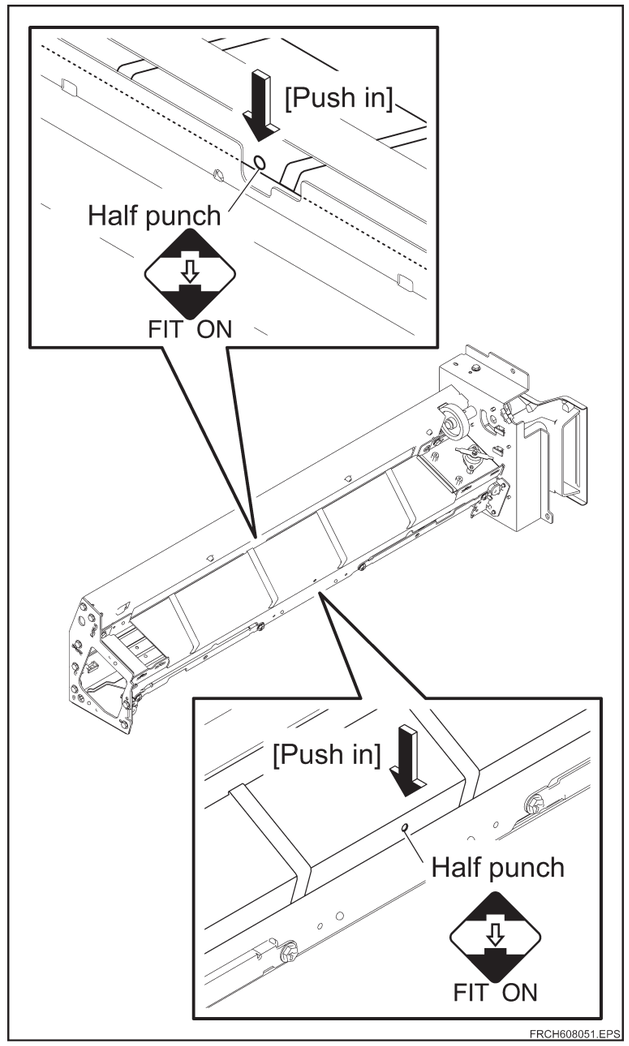
◆ ***NOTE*** ◆

Exercise care not to damage the lamp when reinstalling the filter.



FRCH608050.EPS

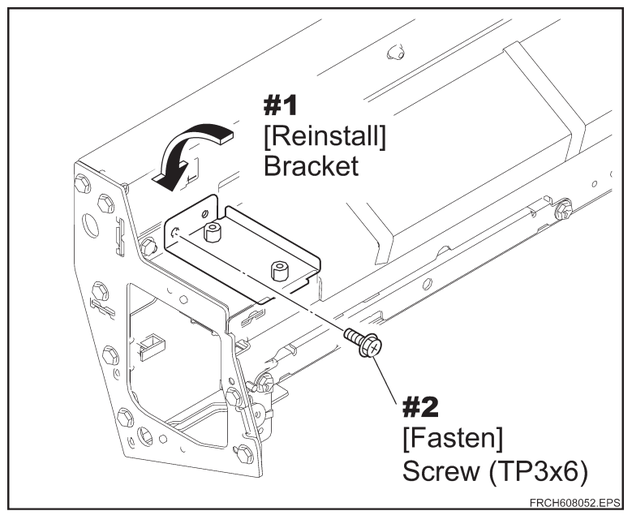
3. **Push the filter into the right and left half punches.**



4. **Reinstall the bracket.**

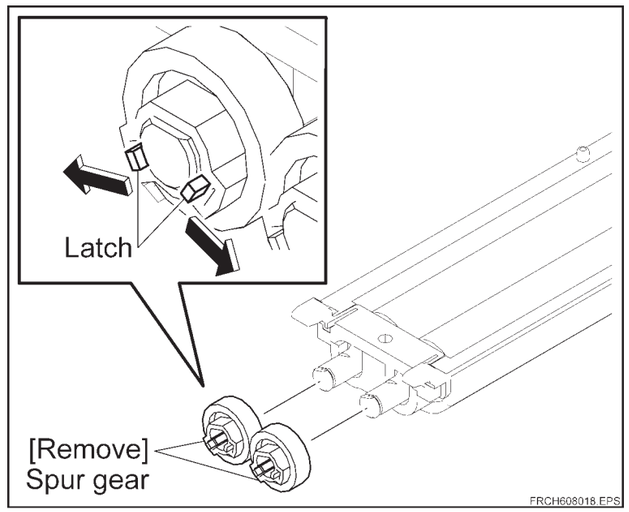
◆ ***NOTE*** ◆

Exercise care not to damage the lamp when reinstalling the bracket.

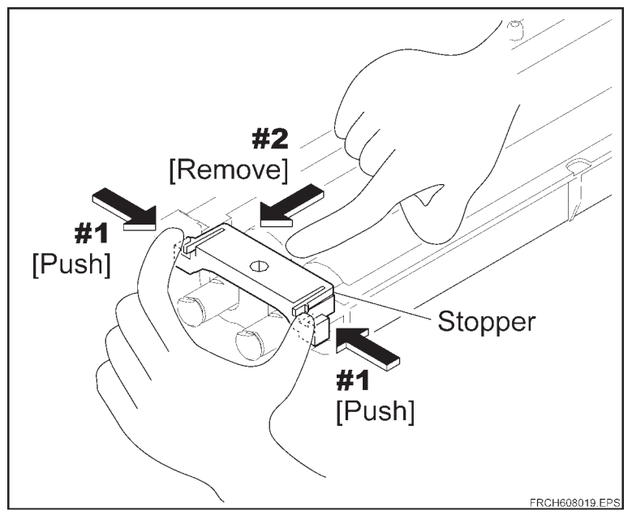


8.5 Cleaning/Replacing the Brush Roller

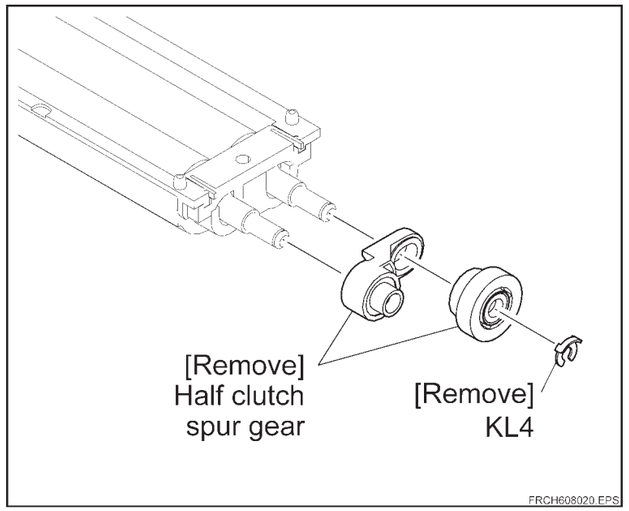
1. **While expanding the latches of the spur gear, remove the spur gears.**



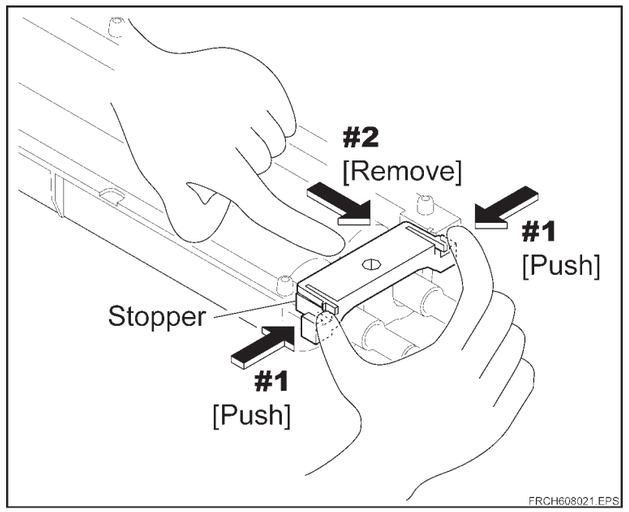
2. **While pushing the latches at both ends of the stopper, remove the stopper.**



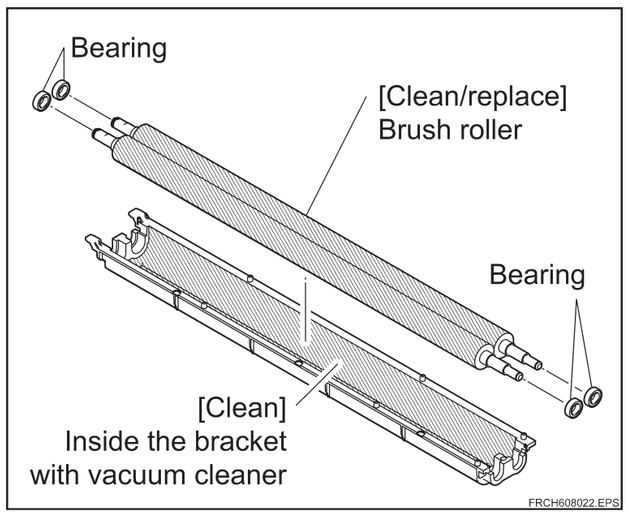
3. **Remove the KL clip and the half clutch spur gear.**



4. **While pushing the latches at both ends of the stopper, remove the stopper.**



5. **Clean the inside of the bracket with a vacuum cleaner, and then remove the bearings from the brush rollers. When the machine has been used for one year, three years, or five years, clean the brush rollers. When the machine has been used for two years, four years, or six years, replace the brush rollers.**

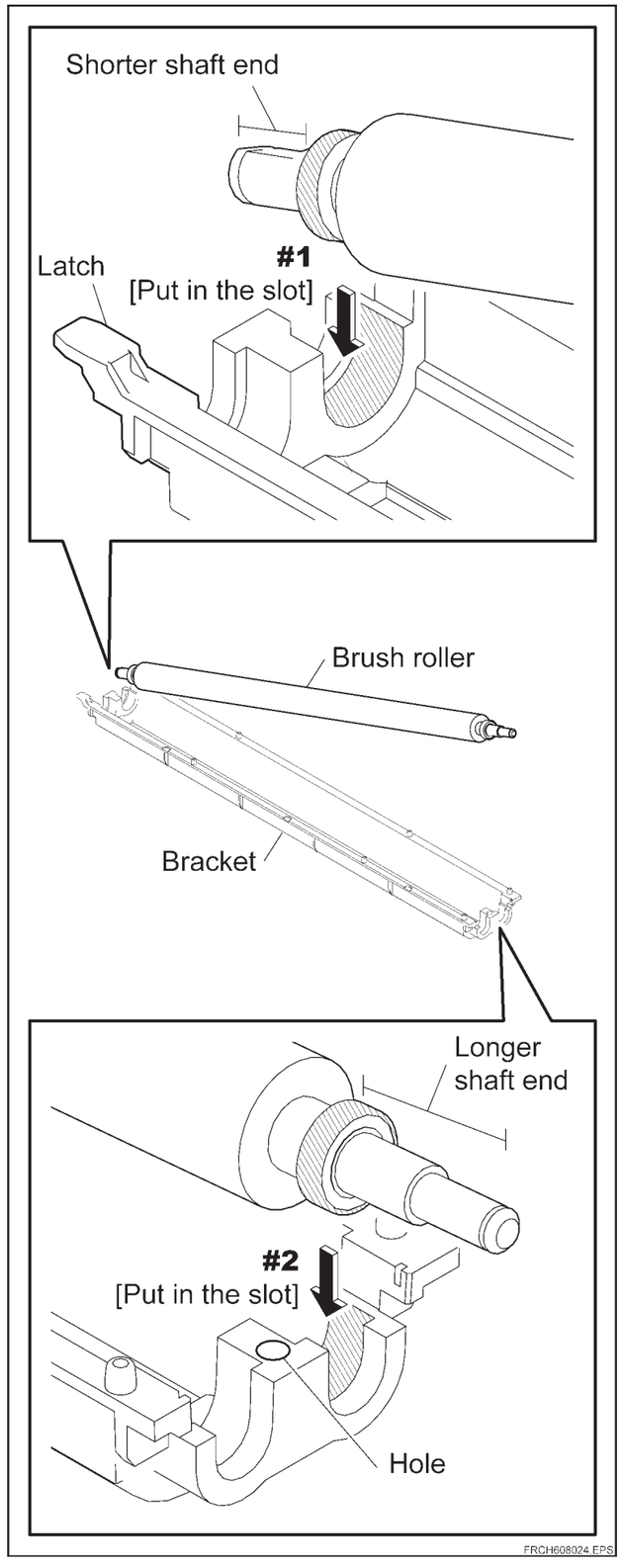


6. **Reinstall the brush roller, watching the orientations of the brush roller and the bracket.**

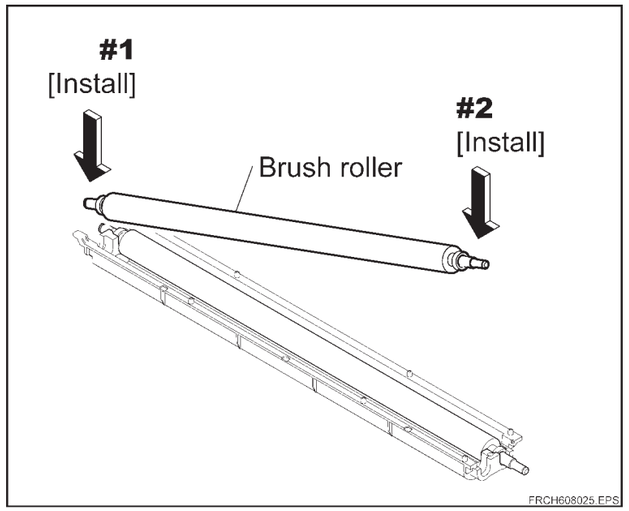
◆ NOTE ◆

Install the brush roller in the correct orientation referring to the figure.

- *Insert the shorter shaft end of the brush roller to a region of the bracket with a latch.*
- *Insert the longer shaft end of the brush roller to a region of the bracket with a hole.*



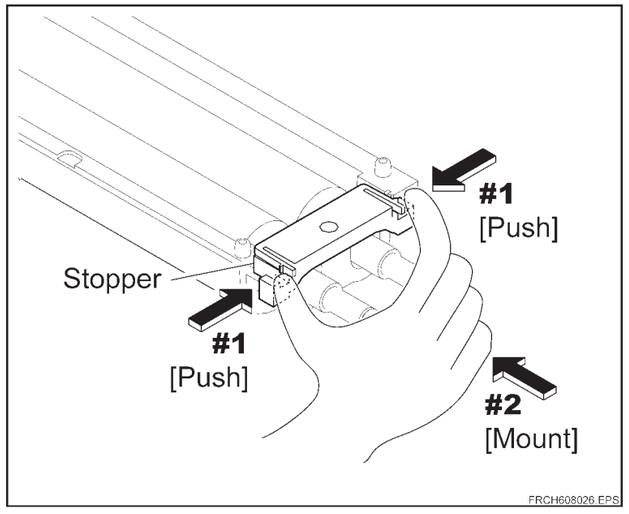
7. **Install the other brush roller similarly to the procedure 6.**



8. **While pushing the latches at both ends of the stopper, mount the stopper. Check to make sure that the stopper will not disengage.**

◆ NOTE ◆

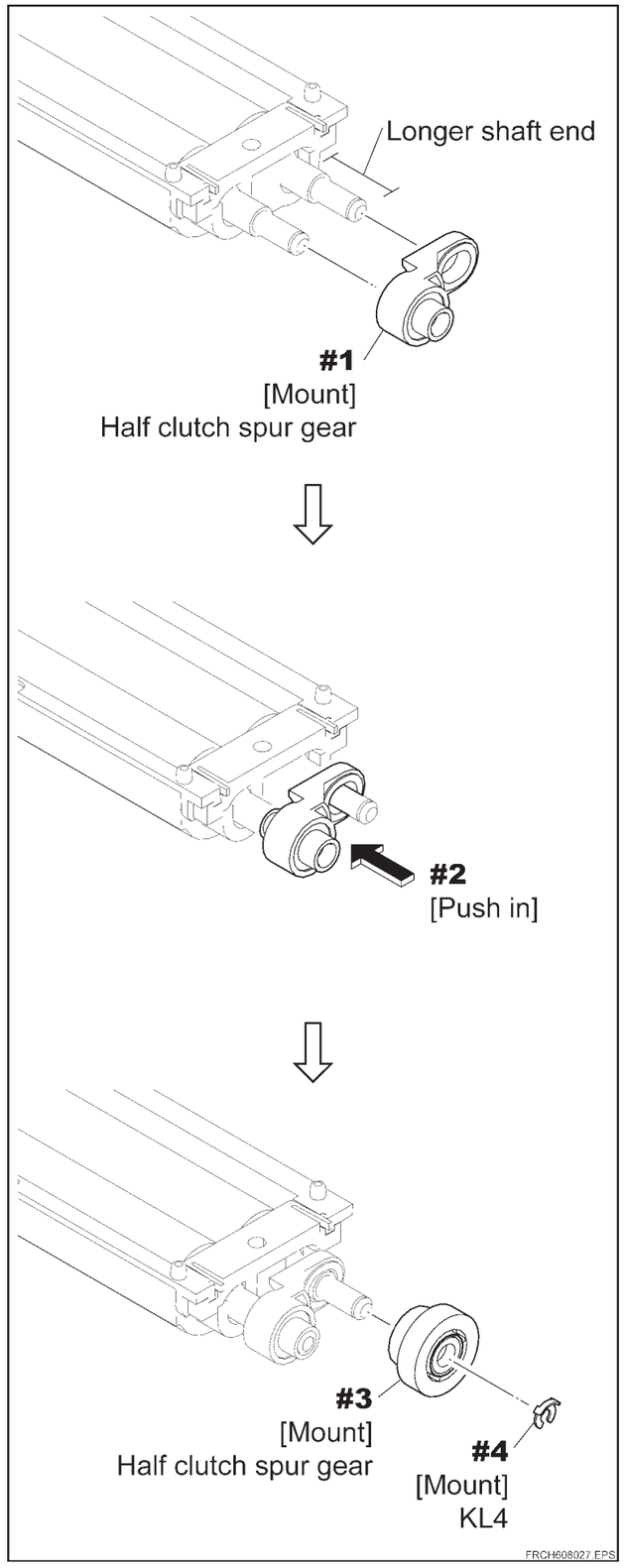
Check to make sure that the stopper latch hooks the inside of the bracket and does not disengage.



9. **Mount the half clutch spur gear and the KL clip on the longer shaft end.**

◆ NOTE ◆

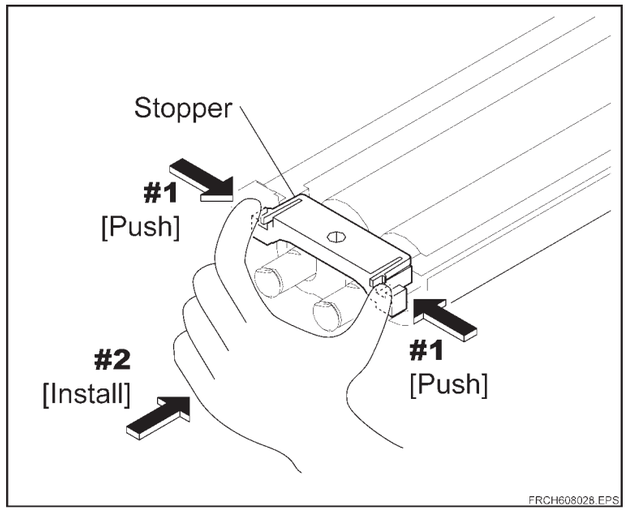
Place the half clutch spur gear in the orientation indicated in the figure. If reversely placed, the brush roller assembly will not work normally.



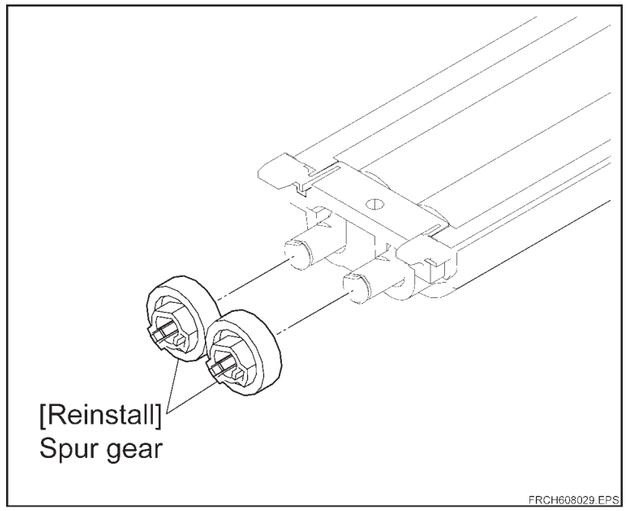
10. **While pushing the latches at both ends of the stopper, mount the stopper. Check to make sure that the stopper will not disengage.**

◆ NOTE ◆

Check to make sure that the stopper latch hooks the inside of the bracket and does not disengage.

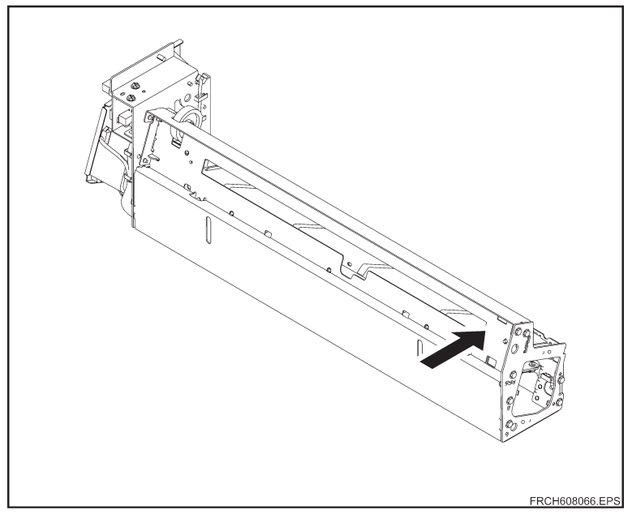


11. **Reinstall the spur gears.**



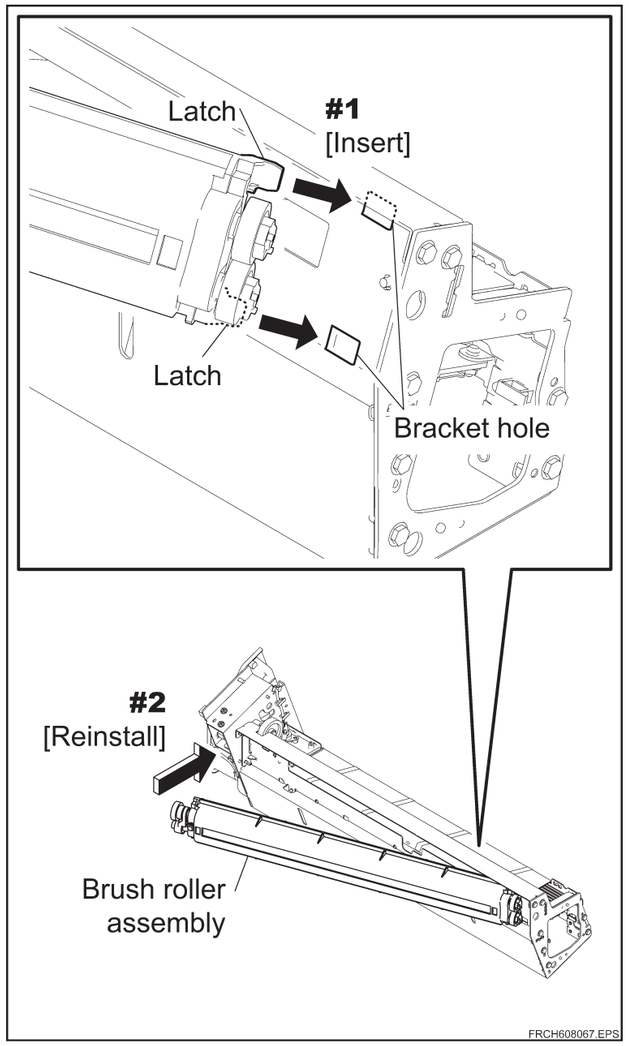
8.6 Reinstalling the Brush Roller Assembly

1. **Take the procedures 2 and 3 from the direction indicated by the arrow in the figure.**



FRCH608066.EPS

2. **Insert the brush roller assembly latches into the bracket holes, before reinstalling.**

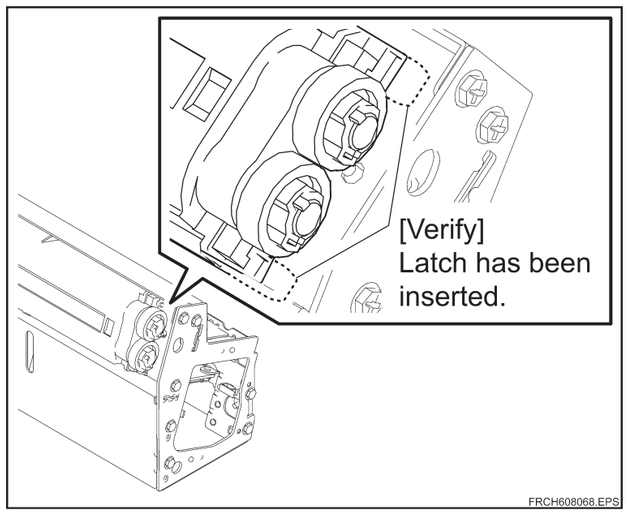


FRCH608067.EPS

3. **Check to make sure that both brush roller assembly latches are inserted into the bracket holes.**

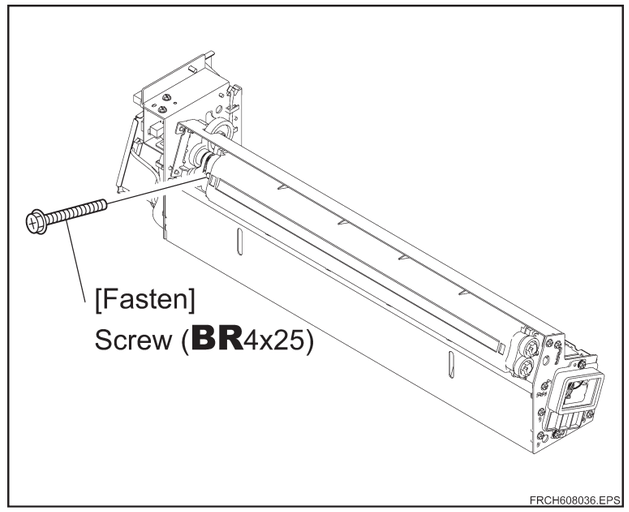
◆ ***NOTE*** ◆

Improper insertion of the brush roller assembly latch may cause an IP jam.

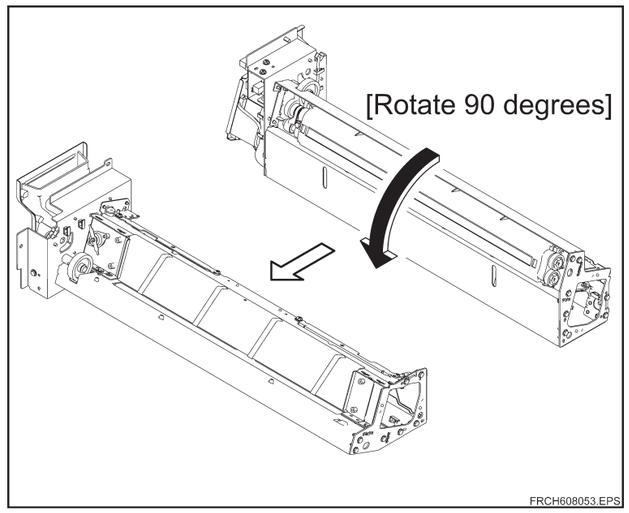


FRCH608068.EPS

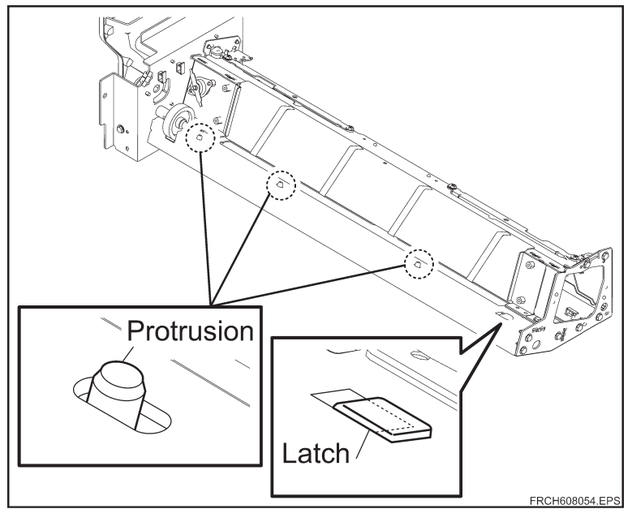
4. **Put on the retaining screw of the brush roller assembly.**



5. **Place the erasure unit in the orientation indicated in the figure.**

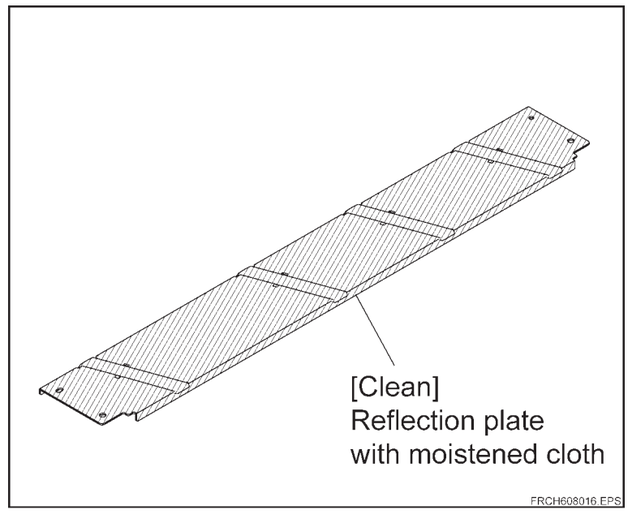


6. **Check to make sure that the brush roller assembly latches and the protrusions are correctly mounted.**



8.7 Cleaning the Reflection Plate

1. **Clean the reflection plate with a moistened cloth.**

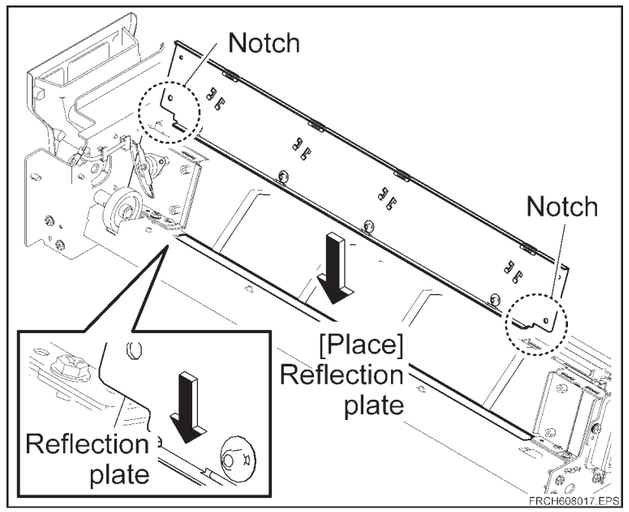


8.8 Reinstalling the Reflection Plate

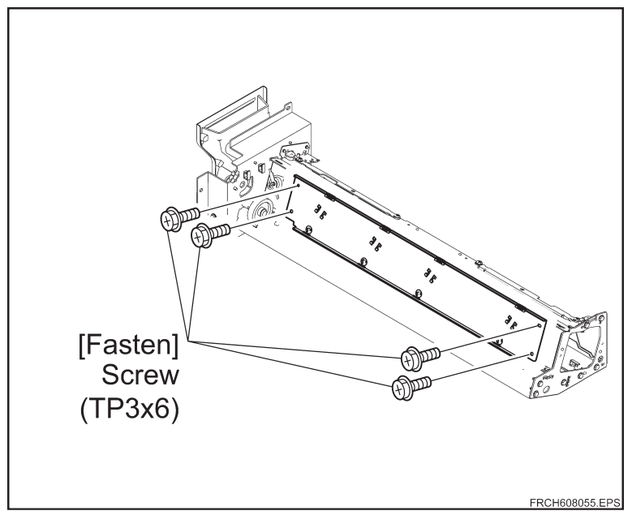
1. **Place the reflection plate with its notches facing downward on the erasure unit.**

◆ **NOTE** ◆

Exercise care in the orientation of mounting the reflection plate.



2. **Reinstall the retaining screws of the reflection plate.**

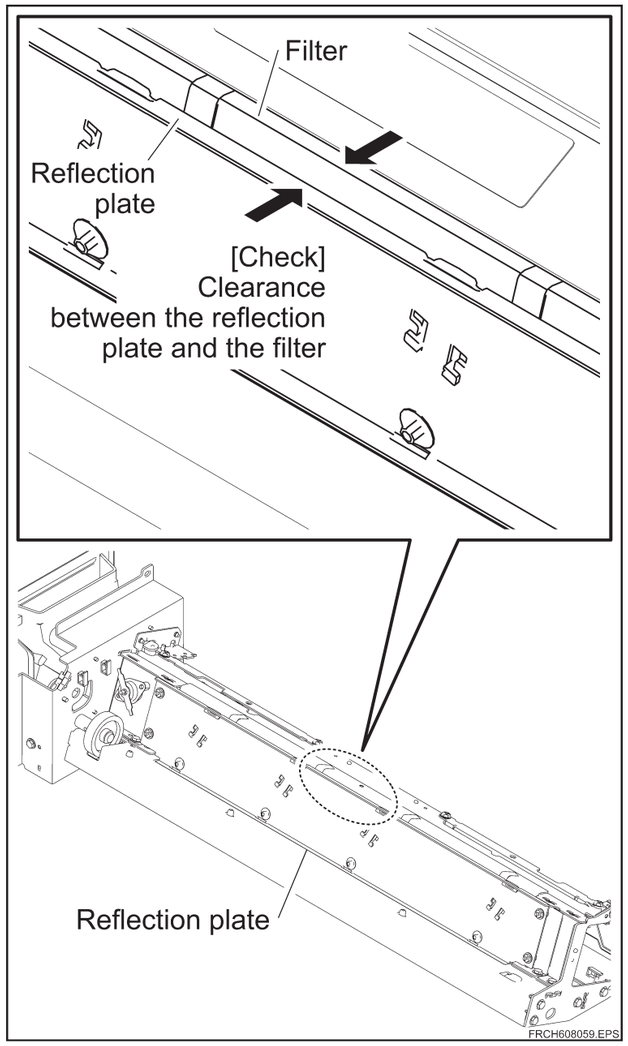


3. **Check to make sure that the clearance is 6 ± 1 mm between the reflection plate and the filter around the center of the reflection plate.**

◆ **NOTE** ◆

If the clearance between the reflection plate and the filter is smaller than 5 mm or larger than 7 mm, the warp of the reflection plate need be corrected. Correct the warp of the reflection plate, referring to the Check, Replacements and Adjustment of Parts "6.6.3 Check/Adjustment Procedures".

☞ ***{MC:6.6.3_Check/Adjustment Procedures}***

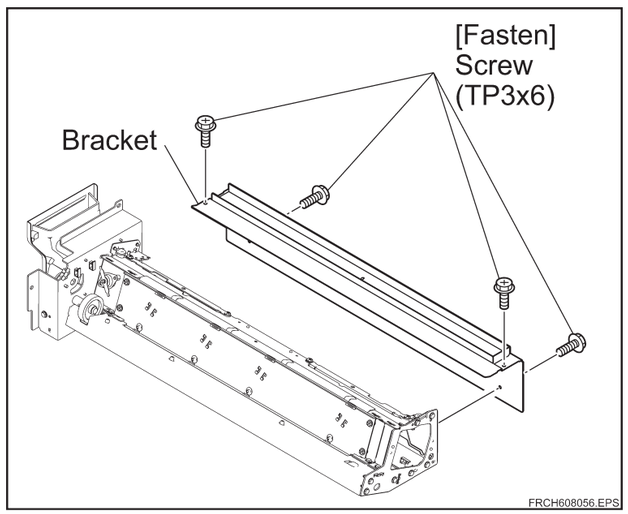


4. **Reinstall the bracket.**

◆ **NOTE** ◆

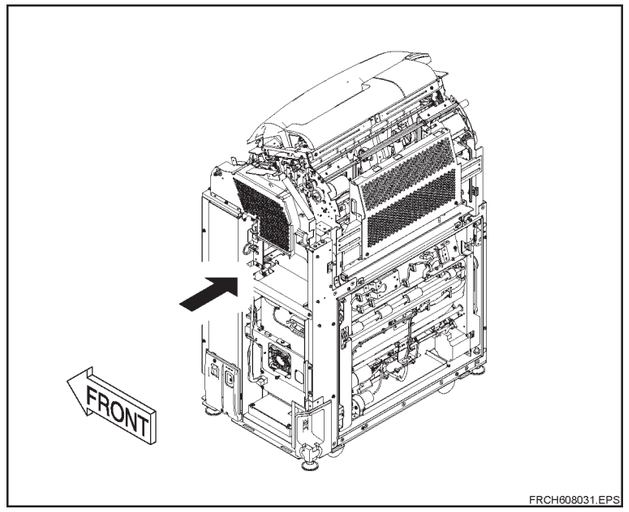
Do not raise nor move the erasure unit, holding the reflection plate. If the reflection plate deforms, correct its warp referring to the Check, Replacements and Adjustment of Parts "6.6.3 Check/ Adjustment Procedures".

☞ ***{MC:6.6.3_Check/Adjustment Procedures}***

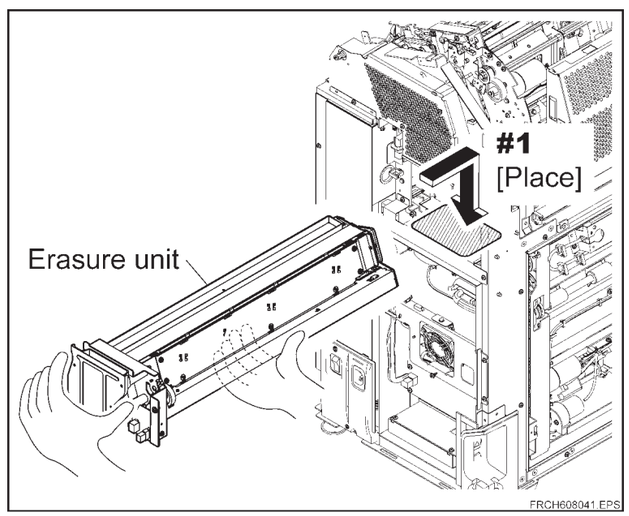


8.9 Reinstalling the Erasure Unit

1. **Take the procedures from 2 to 6 from the direction indicated by the arrow in the figure.**



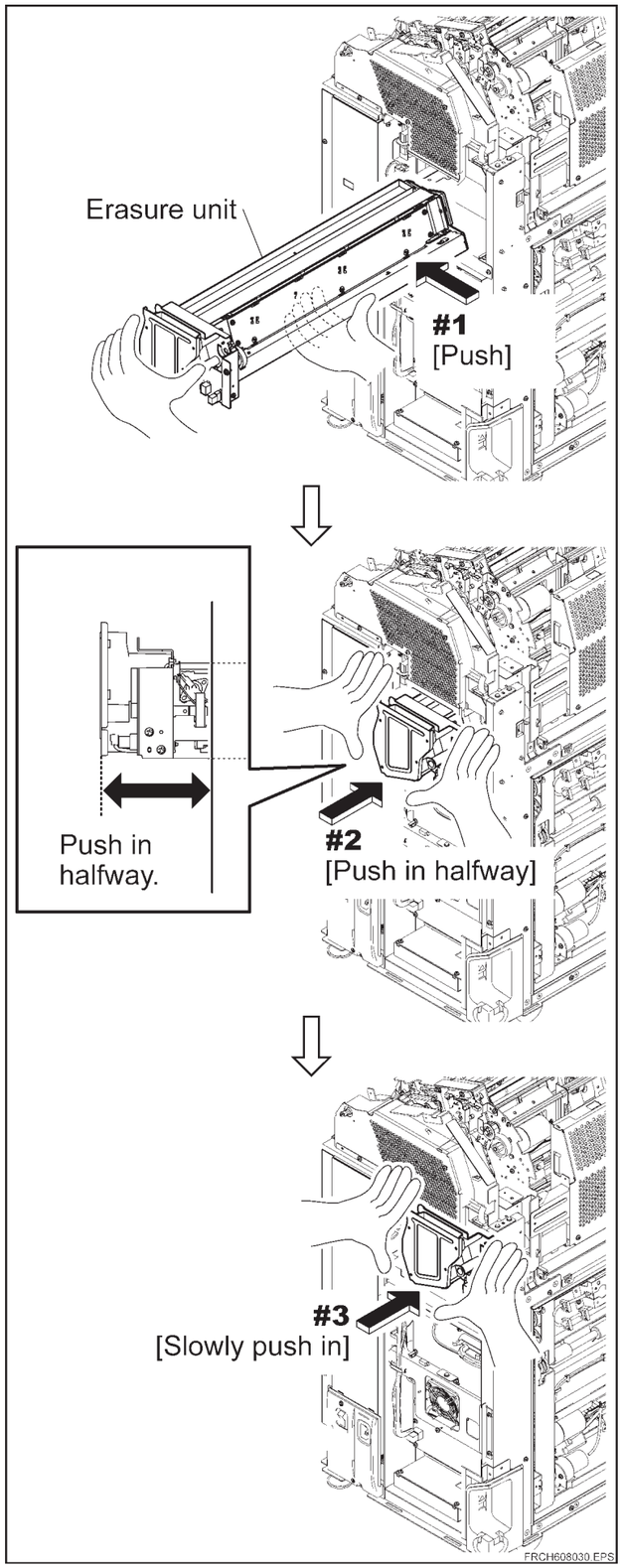
2. **Place the erasure unit in the housing (shaded portion), supporting it on the positions indicated in the figure.**



3. **While pushing the erasure unit in the direction of the arrow, push it halfway into the housing. Push into the innermost while exercising care not to have the cable caught.**

◆ *NOTES* ◆

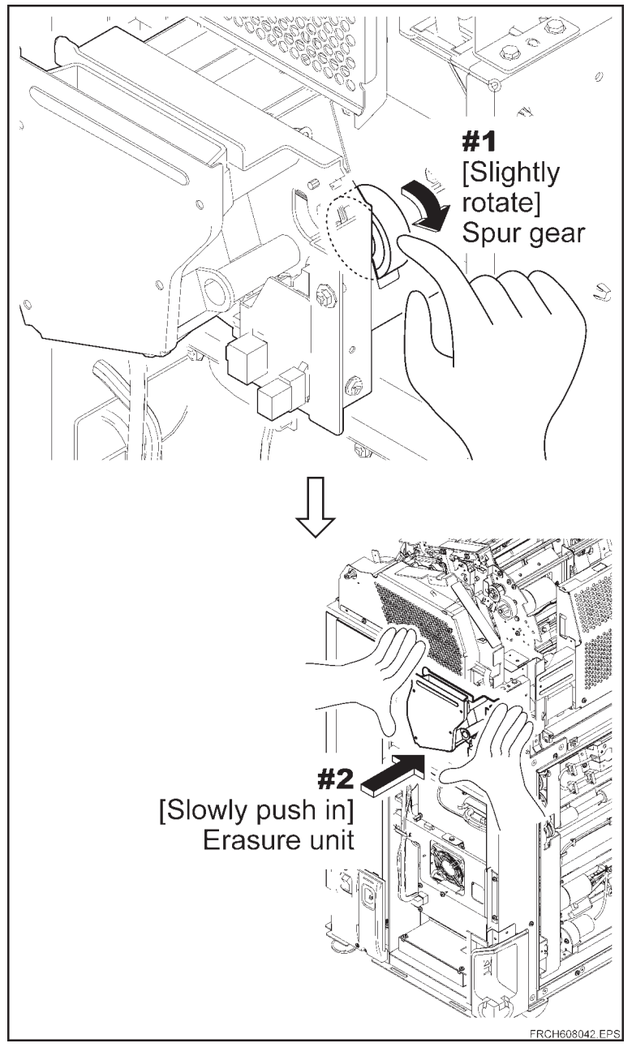
- *If the erasure unit cannot be pushed to the innermost in the housing, do not push it forcibly. The spur gear of the erasure unit might get damaged.*
- *If the erasure unit can be pushed into the innermost without the cassette set unit and the spur gear of the erasure unit interfering with each other, the procedure 4 need not be performed. Proceed to the procedure 5.*



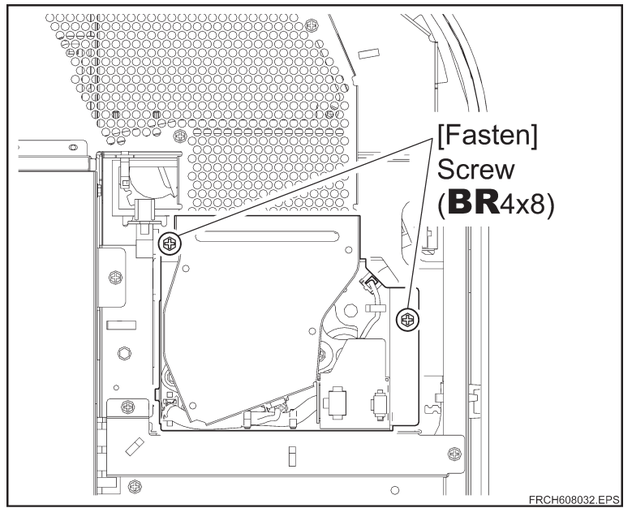
4. **Pull out the erasure unit. Slightly rotate the spur gear, and then push the erasure unit slowly into the housing.**

◆ ***NOTE*** ◆

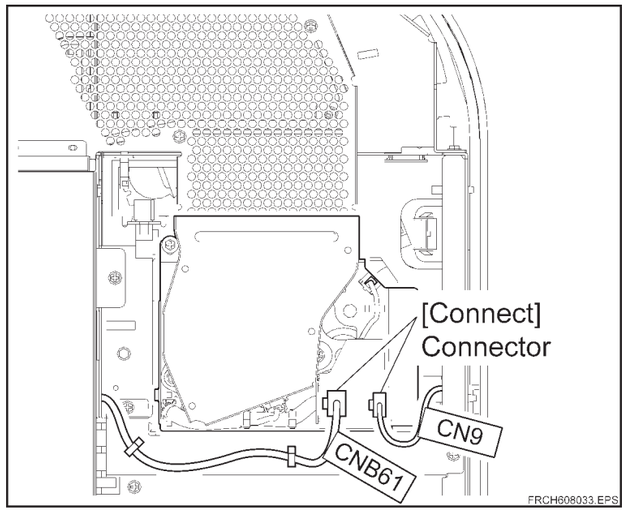
If the erasure unit cannot be pushed to the innermost in the housing, do not push it forcibly. The spur gear of the erasure unit might get damaged.



5. **Reinstall the retaining screws of the erasure unit.**



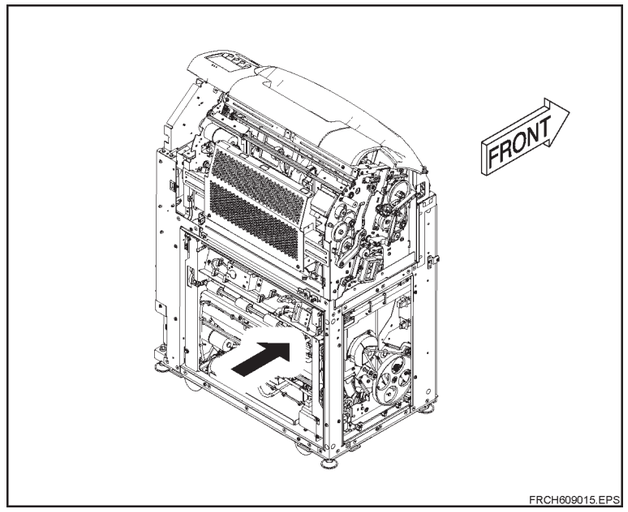
6. **Connect the connectors.**



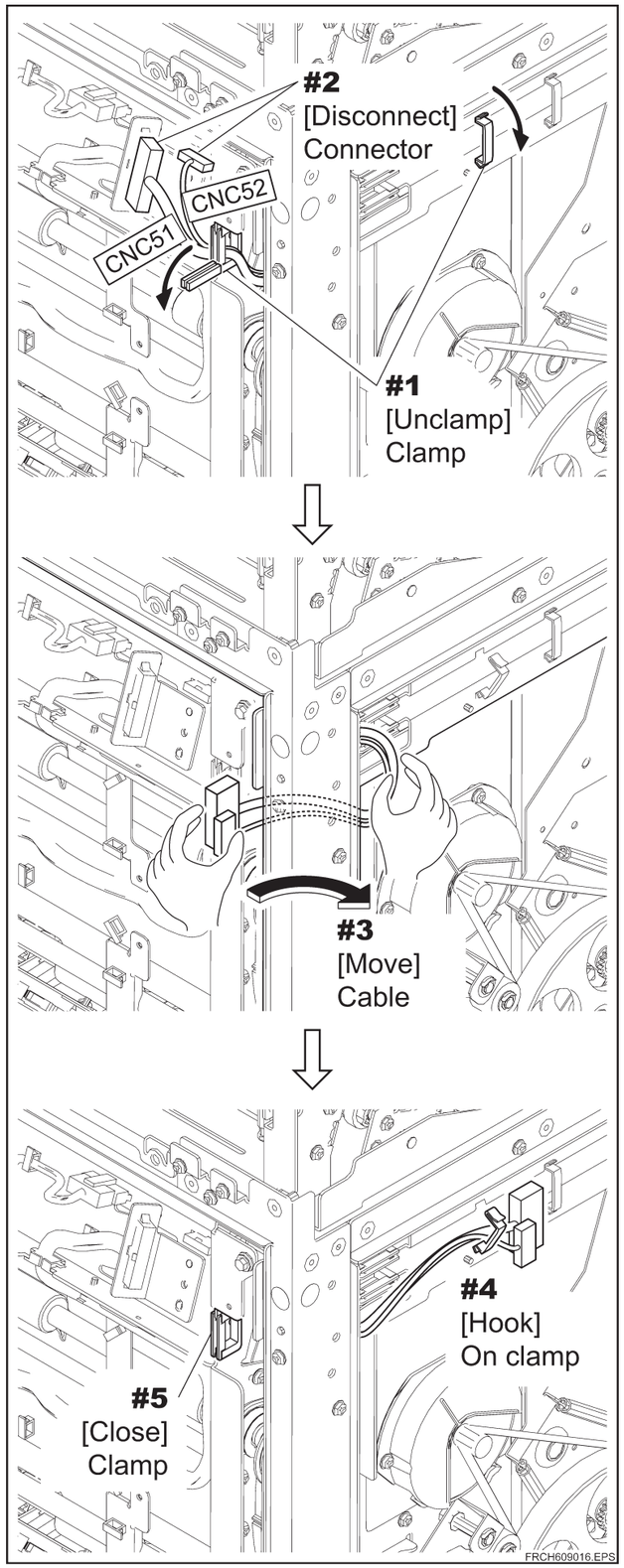
9. Side-Positioning Conveyor Unit

9.1 Removing the Side-Positioning Conveyor Unit

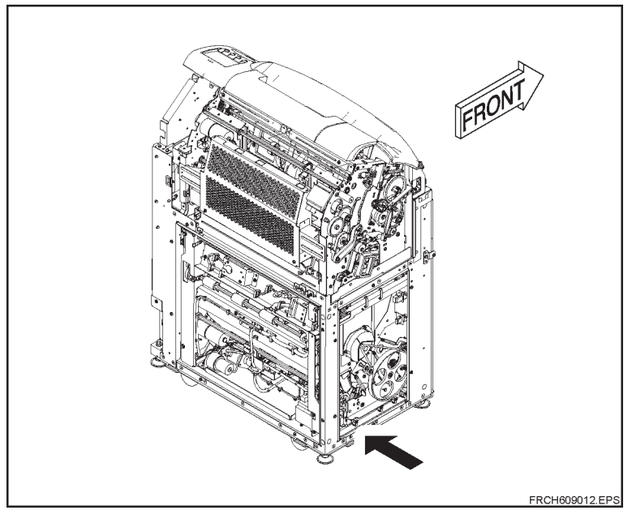
1. **Take the procedure 2 from the direction indicated by the arrow in the figure.**



2. **Unclamp the clamp, and disconnect the connector. Move the cable toward the side face for the protection of the cable, and hook it on the clamp. Close the clamp.**



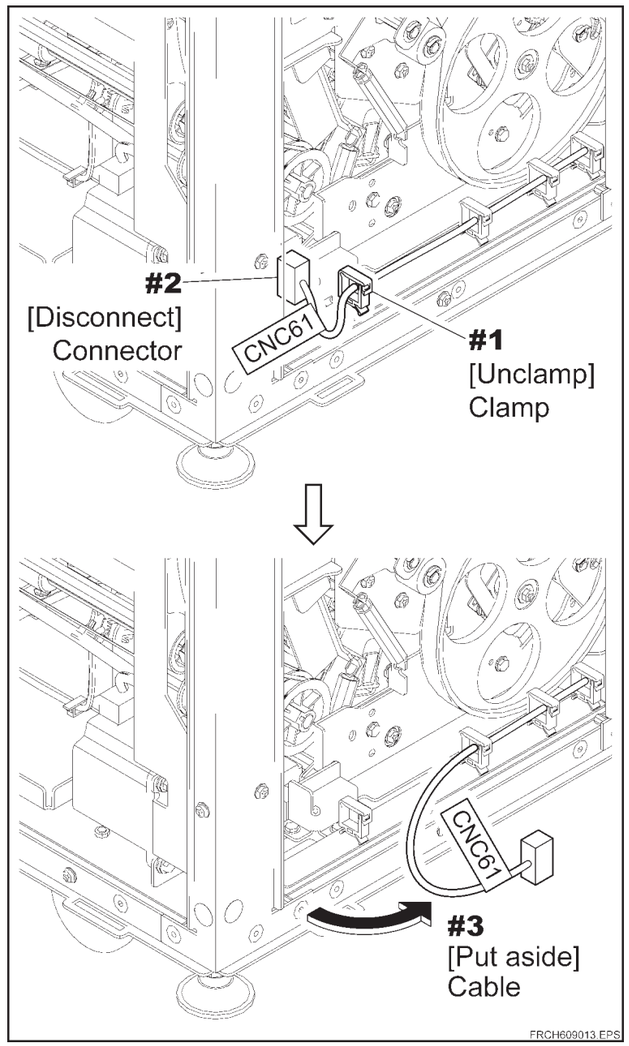
3. **Take the procedures 4 and 5 from the direction indicated by the arrow in the figure.**



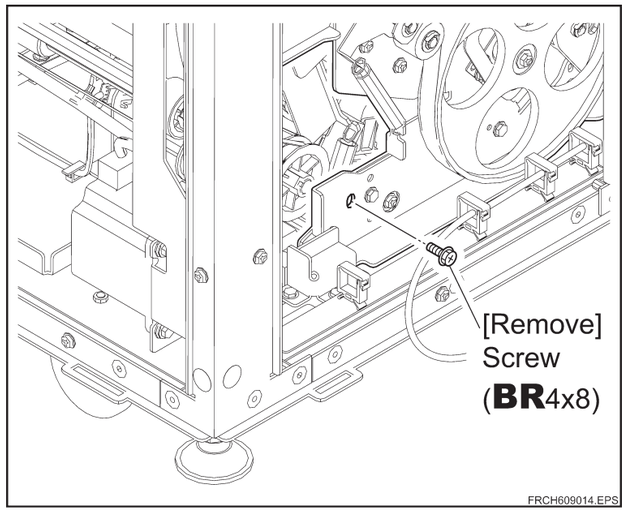
4. **Unclamp the clamp, and disconnect the connector. Set aside the cable out of the housing for the protection of the cable.**

◆ ***NOTE*** ◆

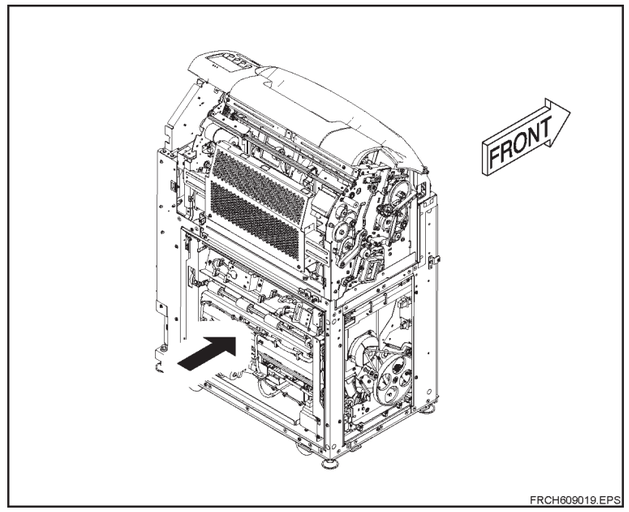
Be sure to put the cable aside out of the housing. Otherwise, the cable and the connector might get caught when removing/reinstalling the side-positioning conveyor unit.



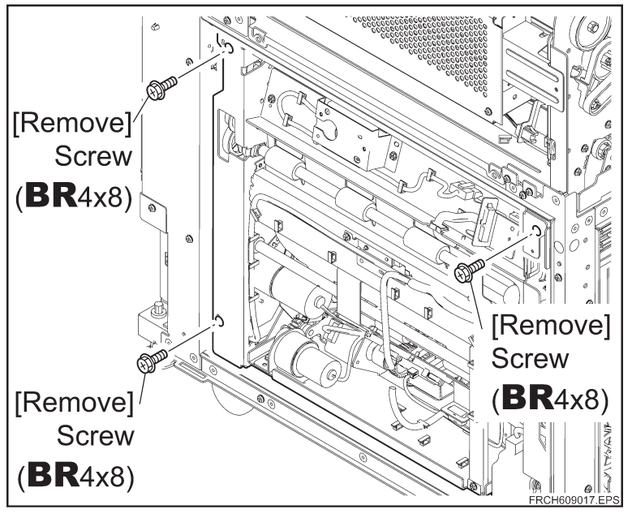
5. **Remove the retaining screw of the side-positioning conveyor unit.**



6. **Take the procedures 7 and 8 from the direction indicated by the arrow in the figure.**



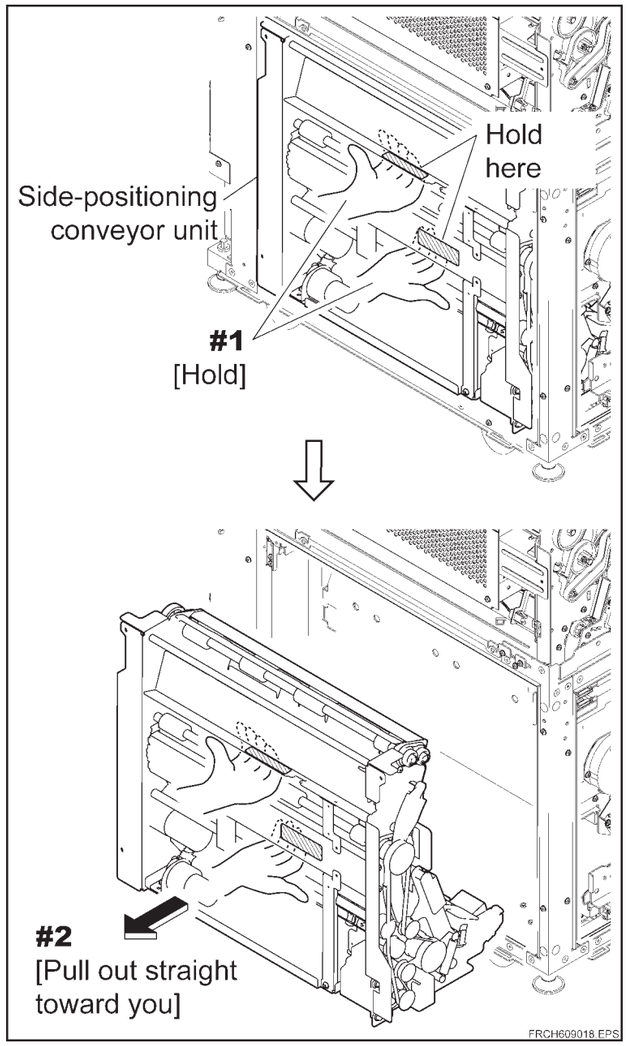
7. **Remove the retaining screw of the side-positioning conveyor unit.**



8. **Supporting the side-positioning conveyor unit on the positions indicated in the figure, pull the unit straight toward you.**

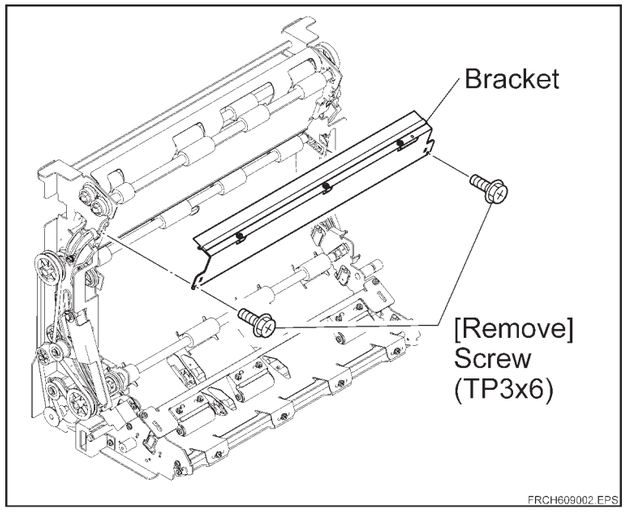
◆ ***NOTE*** ◆

Always support the unit on the positions indicated in the figure for this operation. If the unit is pulled out with other positions supported, components of the side-positioning conveyor unit might get damaged.

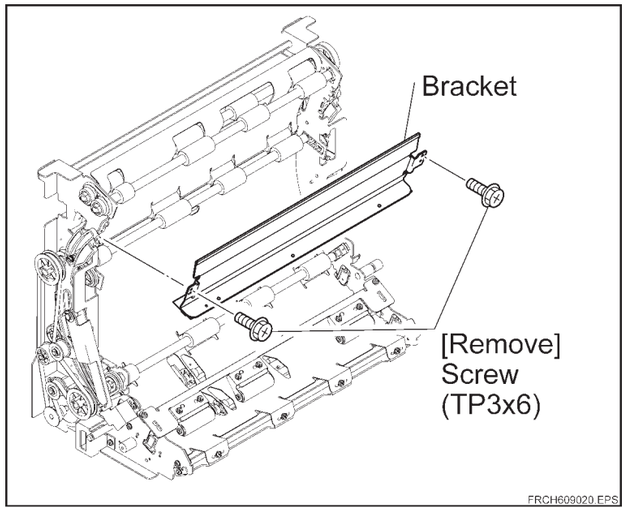


9.2 Cleaning the Guide

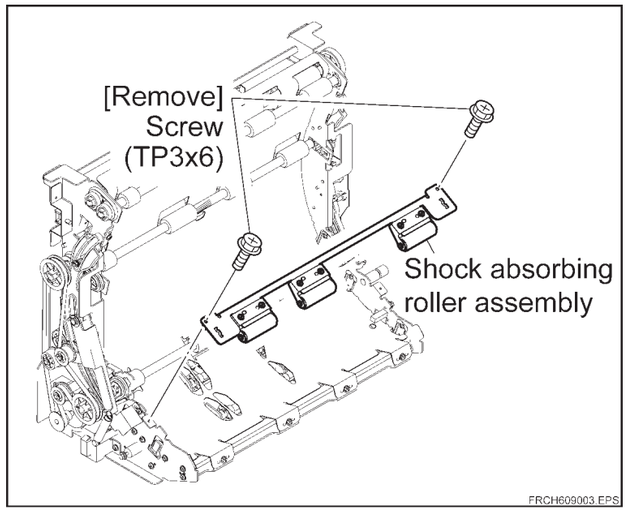
1. **Remove the bracket.**



2. **Remove the bracket.**



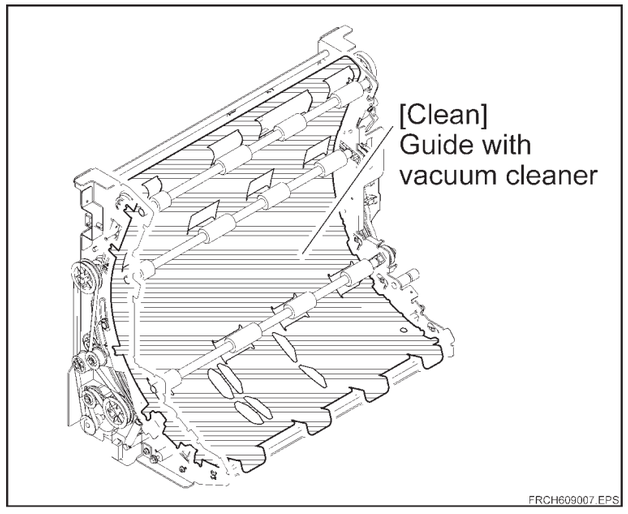
3. **Remove the shock absorbing roller assembly.**



4. **Clean the guide with a vacuum cleaner.**

◆ ***NOTE*** ◆

Always use a vacuum cleaner for cleaning the guide. Do not use a moistened cloth.

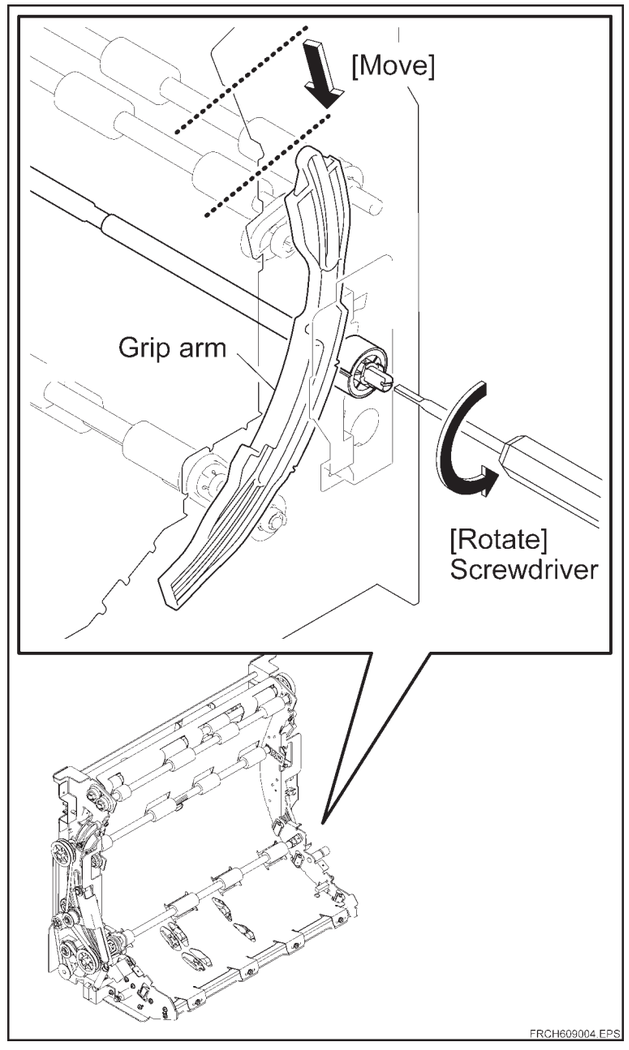


9.3 Cleaning the Rubber Rollers

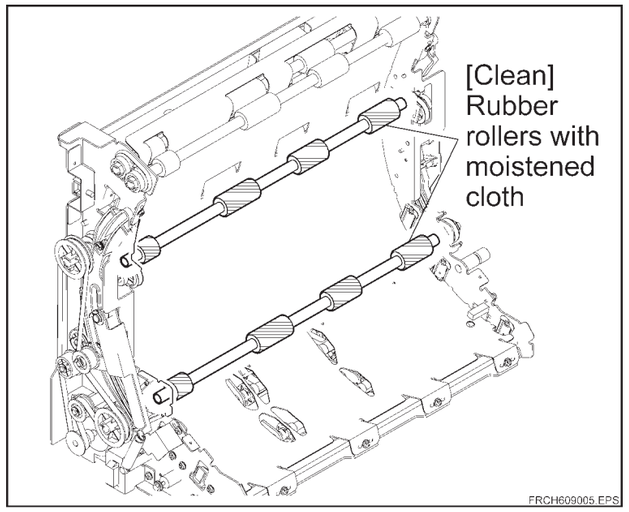
1. **Rotate the shaft with a thin-blade screwdriver, and move the grip arm to the position indicated in the figure.**

◇ *REFERENCE* ◇

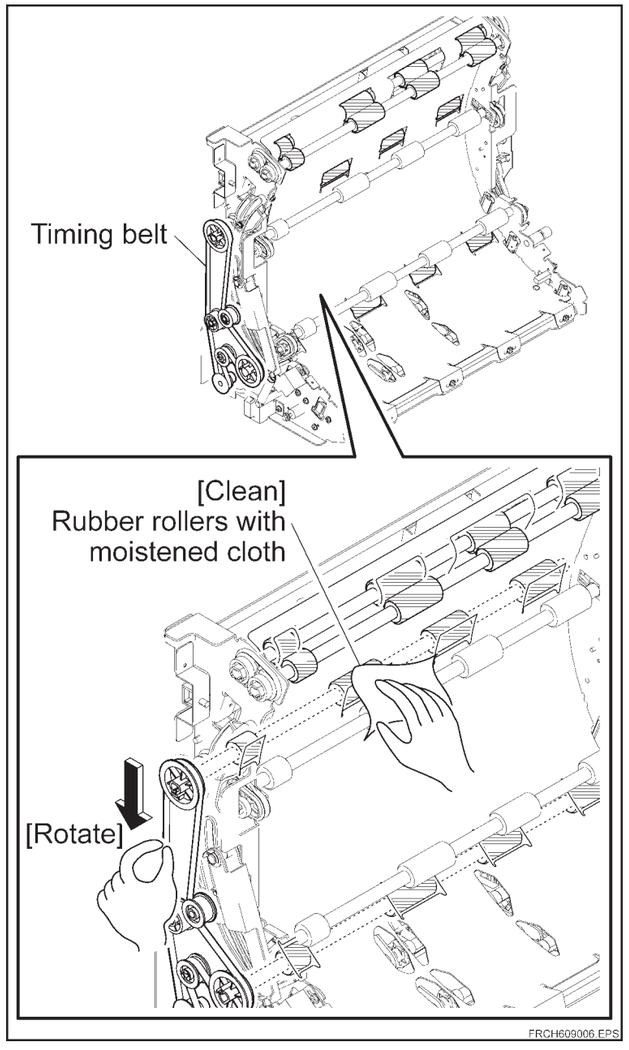
When the shaft is kept rotated by the screwdriver, the gear and the grip arm disengage, and a touching sound occurs when they re-engage. Note that this is not a failure of the machine.



2. **Clean the rubber rollers with a moistened cloth.**

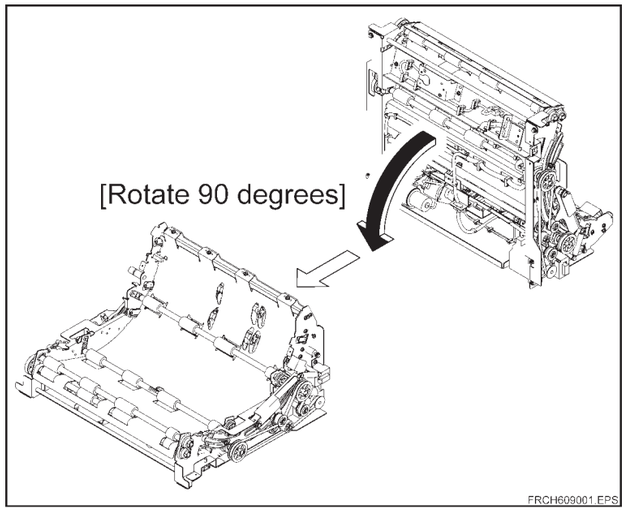


3. **Push the moistened cloth against the rubber rollers. Clean the rubber rollers while rotating the rollers via the timing belt.**

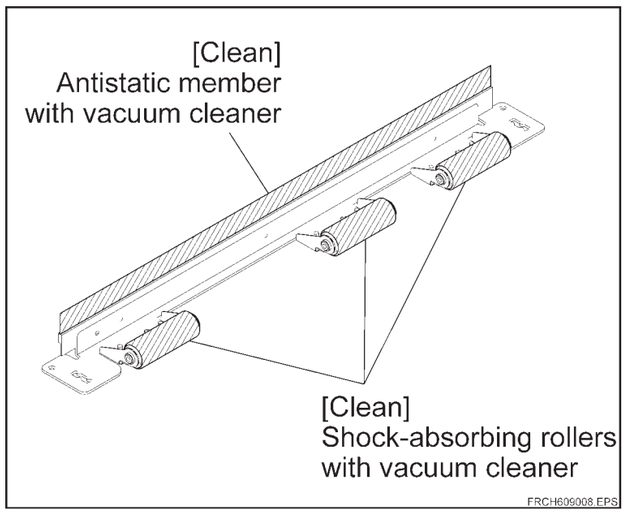


9.4 Cleaning the Shock-Absorbing Rollers, Antistatic Members, and Guide

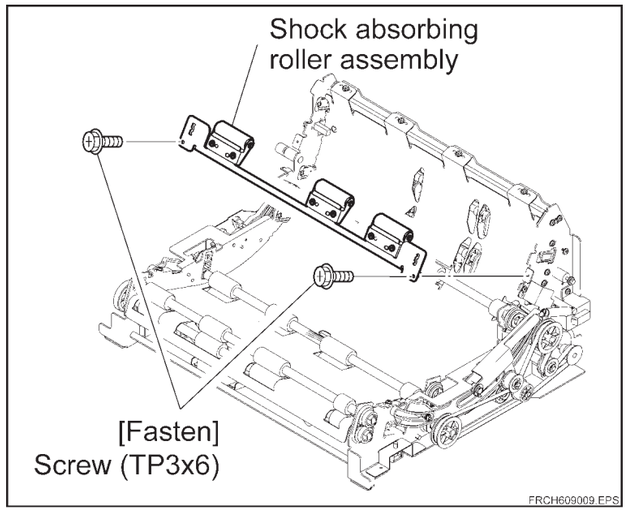
1. **Place the side-positioning conveyor unit in the orientation indicated in the figure.**



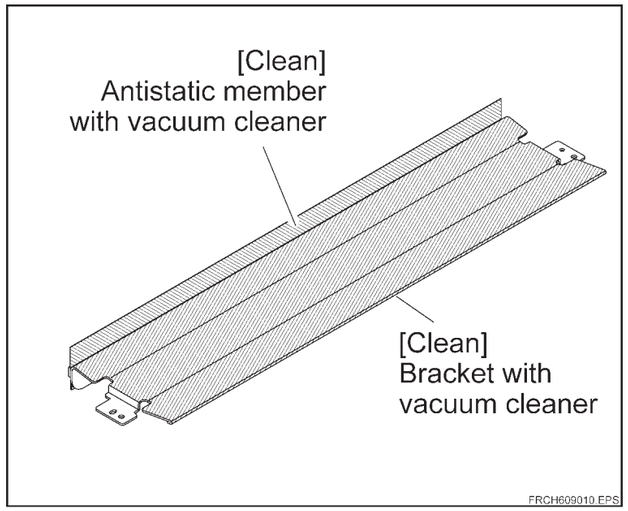
2. **Clean the shock-absorbing rollers and the antistatic member with a vacuum cleaner.**



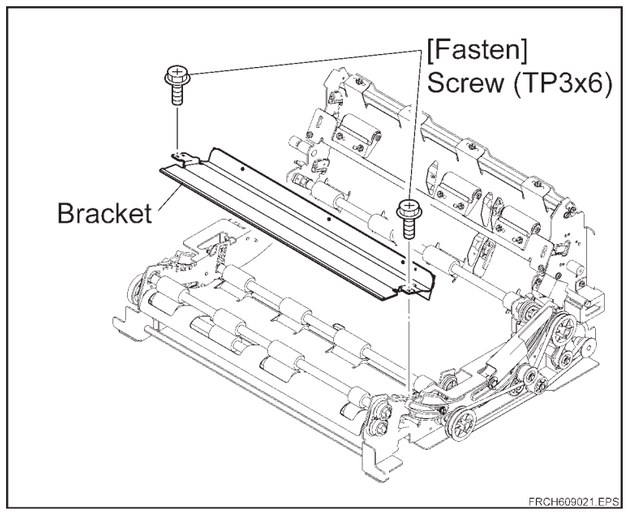
3. **Align the shock-absorbing roller assembly with the mount position while facing the antistatic member downward. Retain the assembly with the screws.**



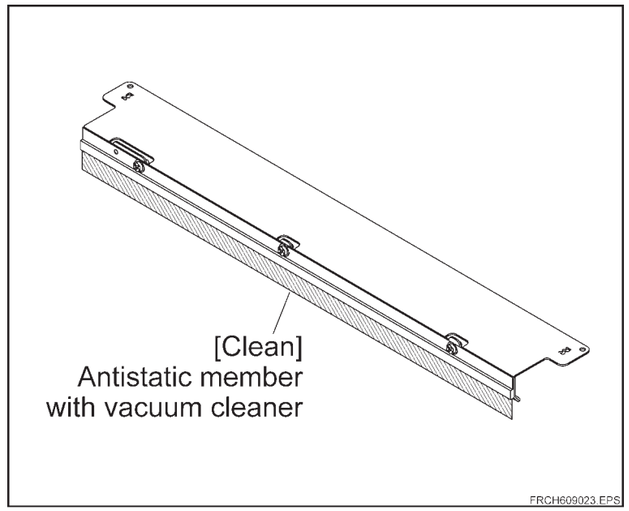
4. **Clean the bracket and the antistatic member with a vacuum cleaner.**



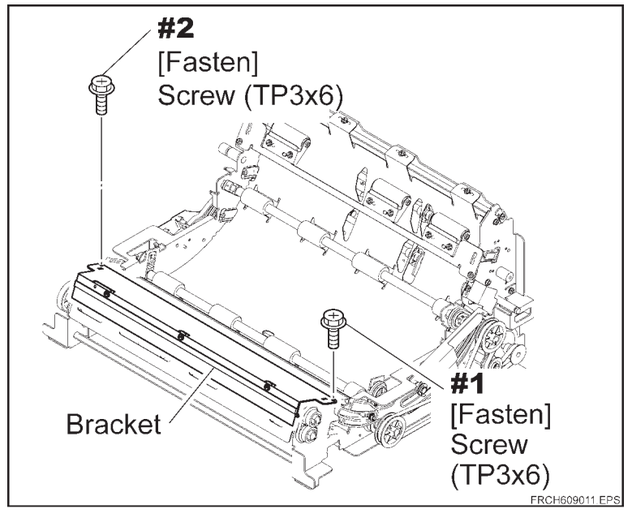
5. **Reinstall the bracket.**



6. **Clean the antistatic member with a vacuum cleaner.**



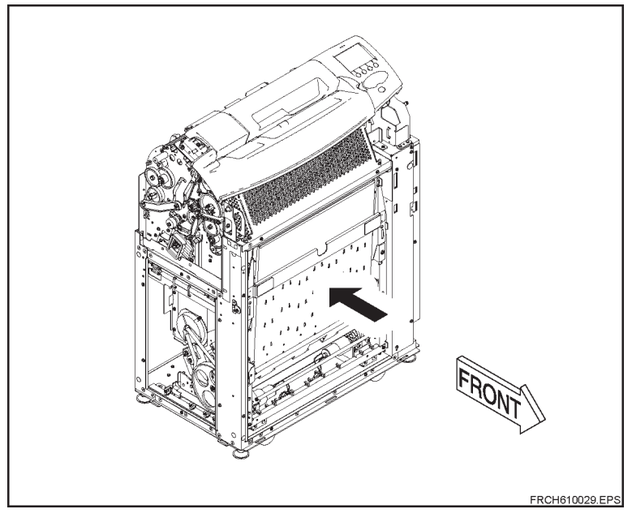
7. **Align one of sides of the bracket with the mount position, and retain it with a screw. Then align the other side with the mount position and retain it with a screw, to have the bracket retained.**



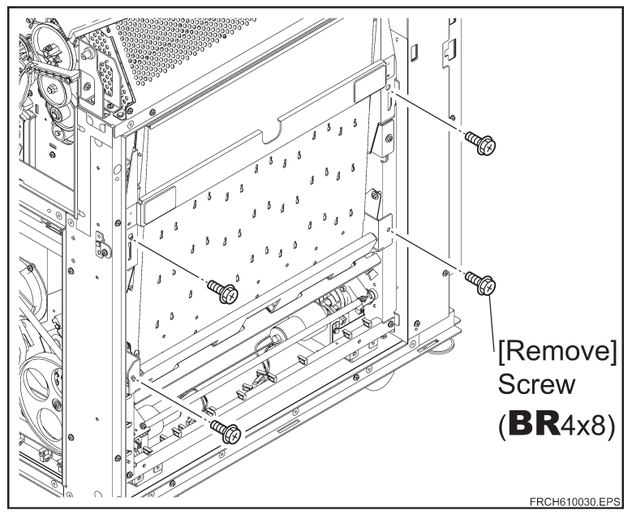
10. Subscanning Unit

10.1 Removing the Post-Reading Conveyor Guide Assembly

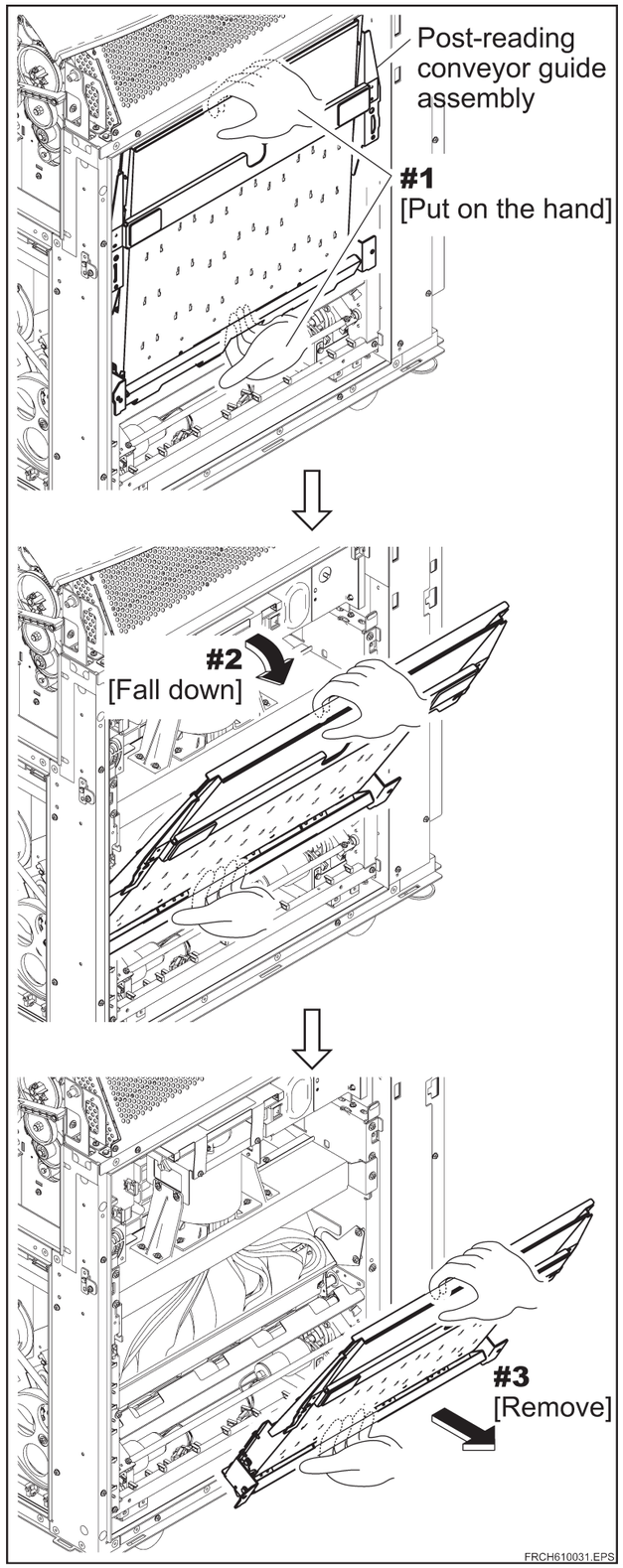
1. **Take the procedures 2 and 3 from the direction indicated by the arrow in the figure.**



2. **Remove the retaining screws of the post-reading conveyor guide assembly.**



3. **Supporting the post-reading conveyor guide assembly on the position indicated in the figure, fall it down slantly and remove.**



10.2 Removing the Light-Collecting Guide

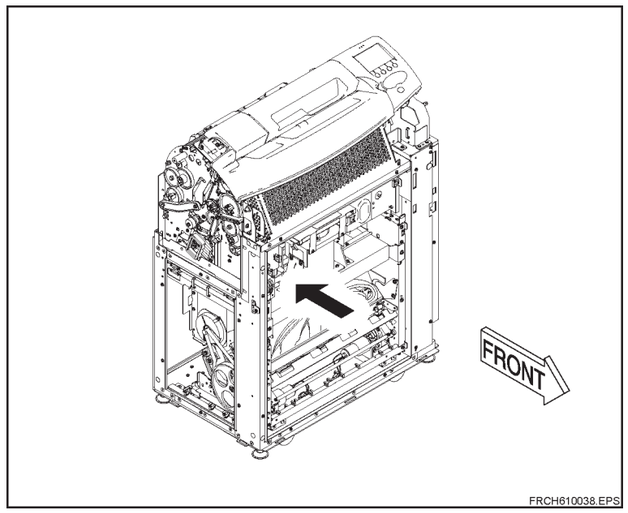
⚠ CAUTION

Never touch the light-receiving face of the light-collecting unit even when you are wearing gloves.

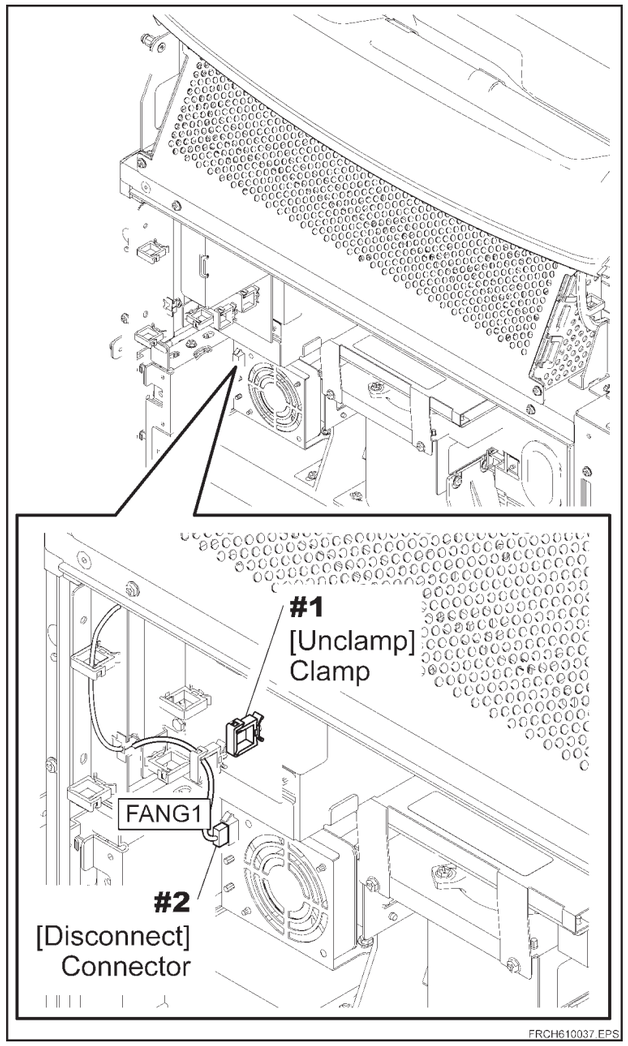
◆ INSTRUCTION ◆

When servicing the light-collecting unit, wear gloves.

1. **Take the procedures from 2 to 5 from the direction indicated by the arrow in the figure.**



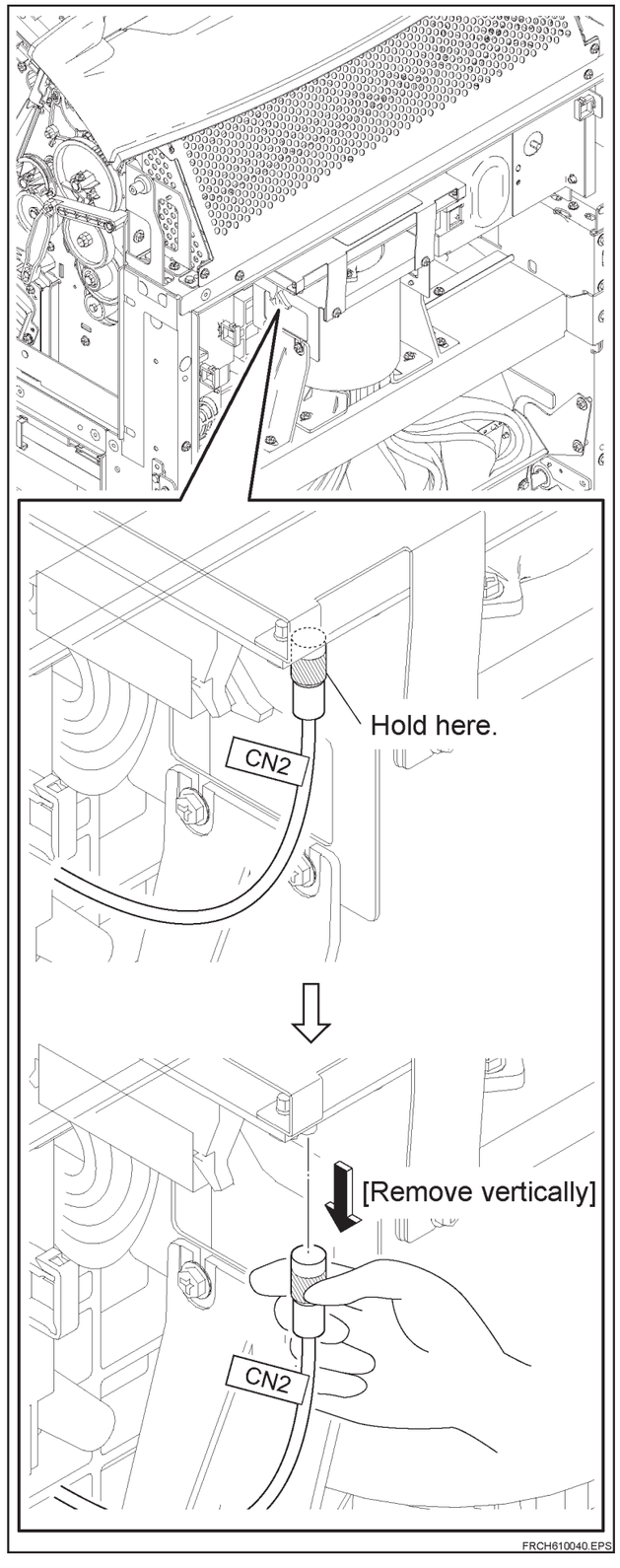
2. **Unclamp the clamp, and disconnect the connector.**



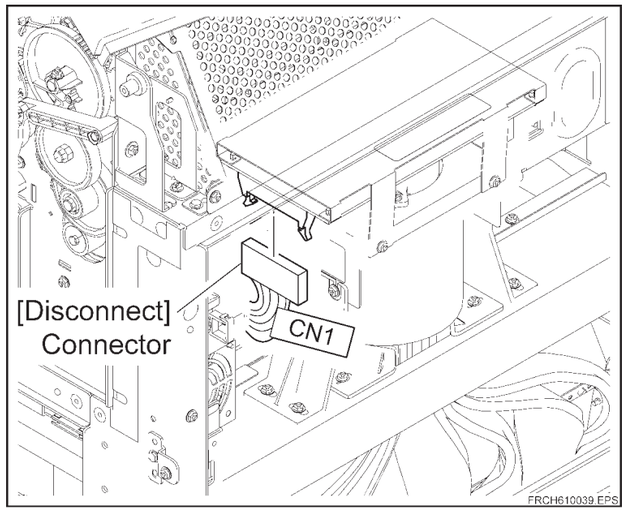
3. **Disconnect the connector while holding the shaded portion in the figure.**

◆ ***NOTES*** ◆

- *Be sure to hold the specified portion to disconnect the connector. Otherwise, the cable may get damaged.*
- *Disconnect the connector vertically. If it is disconnected slantly, the connector on the board may get damaged.*
- *As the working space is small, exercise care not to get injured by peripheral components when disconnecting the connector.*



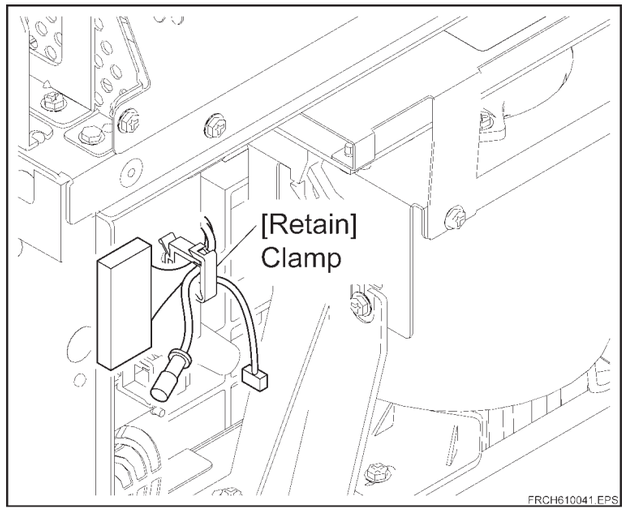
4. **Disconnect the connector.**



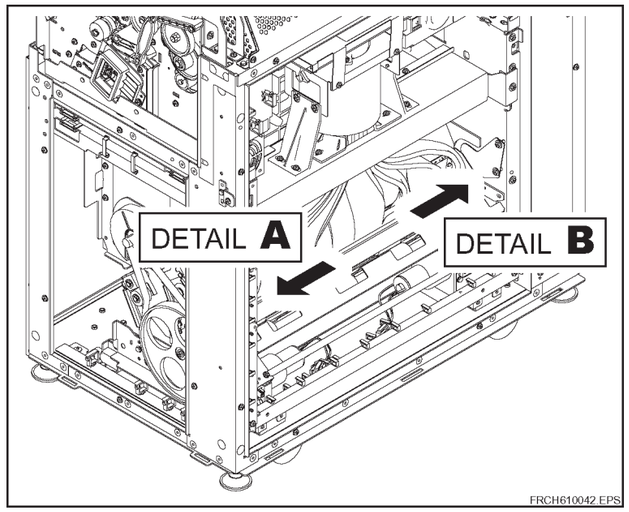
5. **Retain the three cables removed in the procedures 2 to 4 with the clamp for the protection of the cables.**

◆ ***NOTE*** ◆

Be sure to retain the cables with the clamp. Otherwise, the cable and the connector might get caught when removing/reinstalling the light-collecting guide.



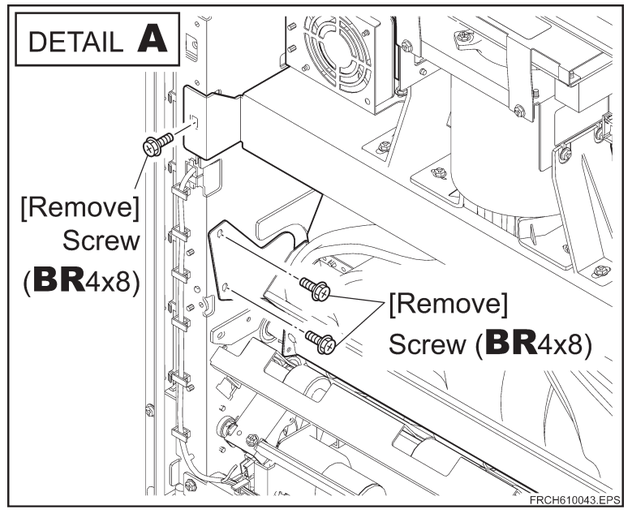
6. **Take the procedures 7 and 8 from the direction indicated by the arrow in the figure.**



7. **Remove the retaining screws of the light-collecting guide from the direction instructed in DETAIL A.**

◆ ***NOTE*** ◆

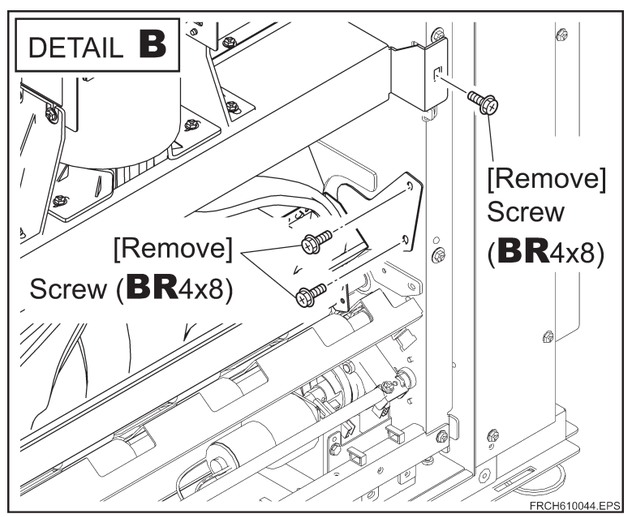
Exercise care not to damage the acrylic part of the light-collecting guide when removing the screws.



8. **Remove the retaining screws of the light-collecting guide from the direction instructed in DETAIL B.**

◆ ***NOTE*** ◆

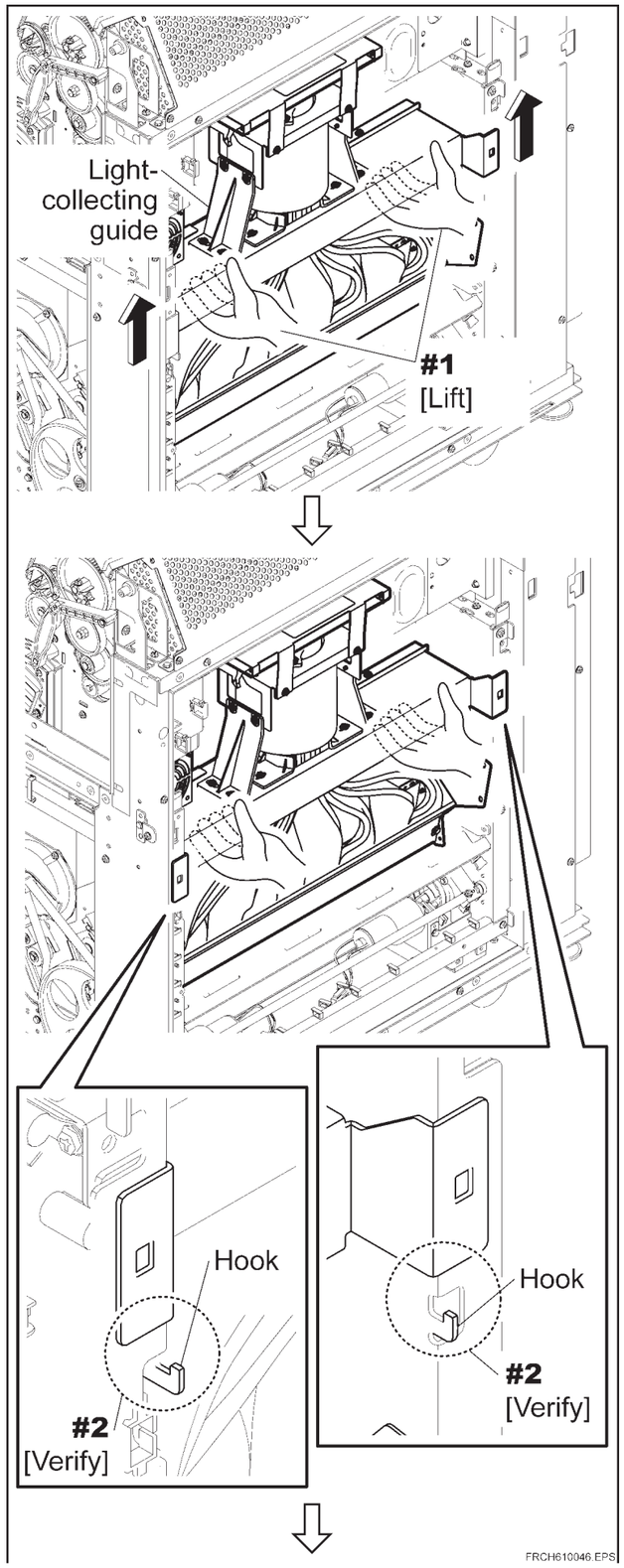
Exercise care not to damage the acrylic part of the light-collecting guide when removing the screws.

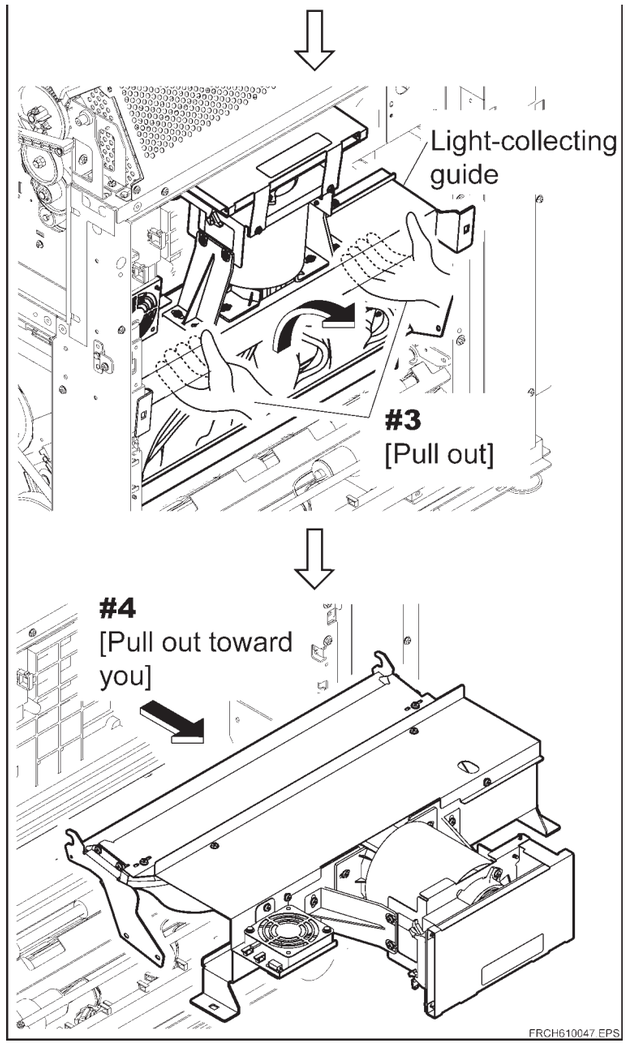


9. **Supporting the light-collecting guide on the positions indicated in the figure, lift the guide. Check to make sure that the light-collecting guide bracket is disengaged from the hook on the side plate of the subscanning unit, and then pull out to remove the light-collecting guide toward you.**

◆ ***NOTE*** ◆

Always check to make sure that the light-collecting guide bracket is disengaged from the hook on the side plate of the subscanning unit before removing the light-collecting guide. Otherwise, the tip of the light-collecting guide might get damaged.

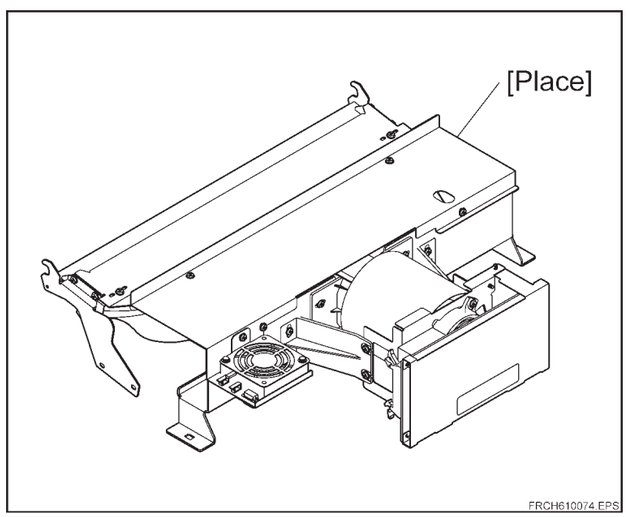




10. **Place the light-collecting guide in the orientation indicated in the figure.**

◆ ***NOTE*** ◆

Be sure to place the light-collecting guide in the orientation indicated in the figure. If placed reversely, load may be applied to the adhesive part of the photomultiplier, causing the light-collecting guide to get damaged.



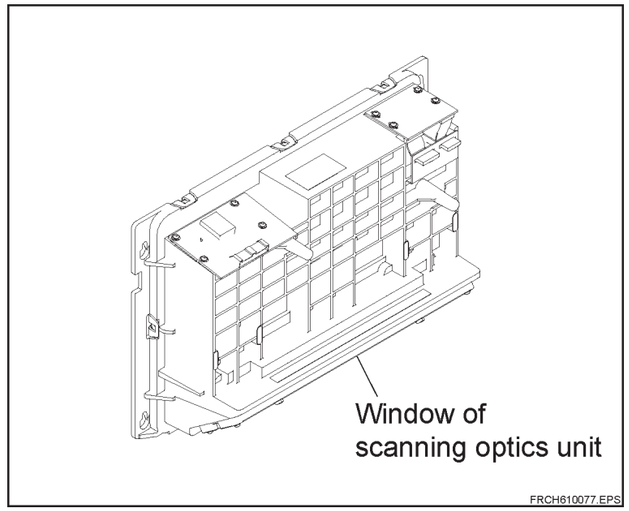
10.3 Removing the Scanning Optics Unit

⚠ CAUTION

When servicing the scanning optics unit, be sure to wear an anti-static wristband to ground your body. If your body is not grounded, static electricity built on your body may cause damage to electronic parts on the board.

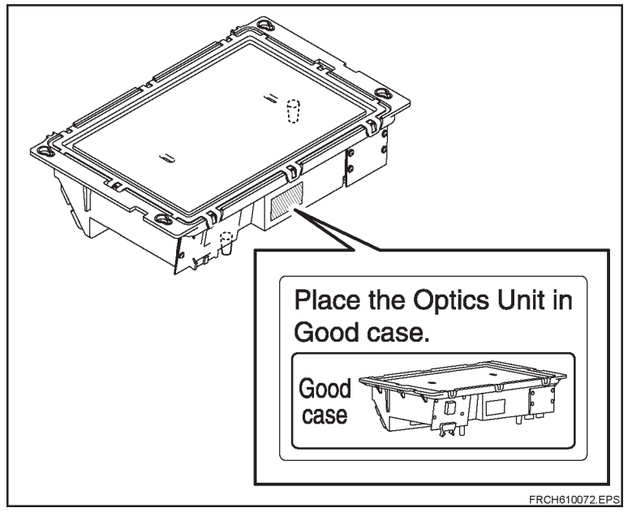
⚠ CAUTION

Never touch the window of the scanning optics unit. If fingerprints or the like are left on the window, the scanning optics unit must be replaced.



◆ NOTE ◆

Place the scanning optics unit in the orientation as shown in the figure, according to the label indicating how to place the scanning optics unit.



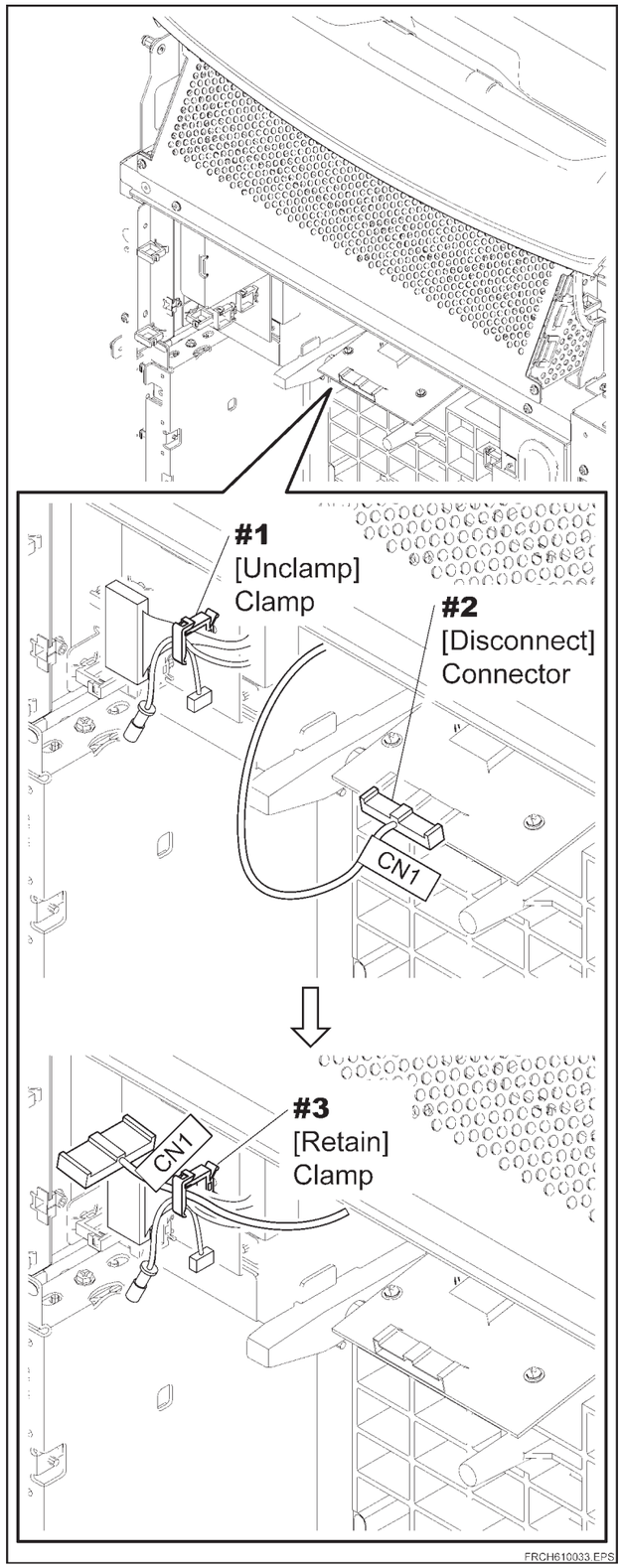
◆ INSTRUCTION ◆

Do not remove the top cover of the scanning optics unit.

1. Unclamp the clamp, and disconnect the connector. Retain the cables with the clamp for the protection of the cable.

◆ NOTE ◆

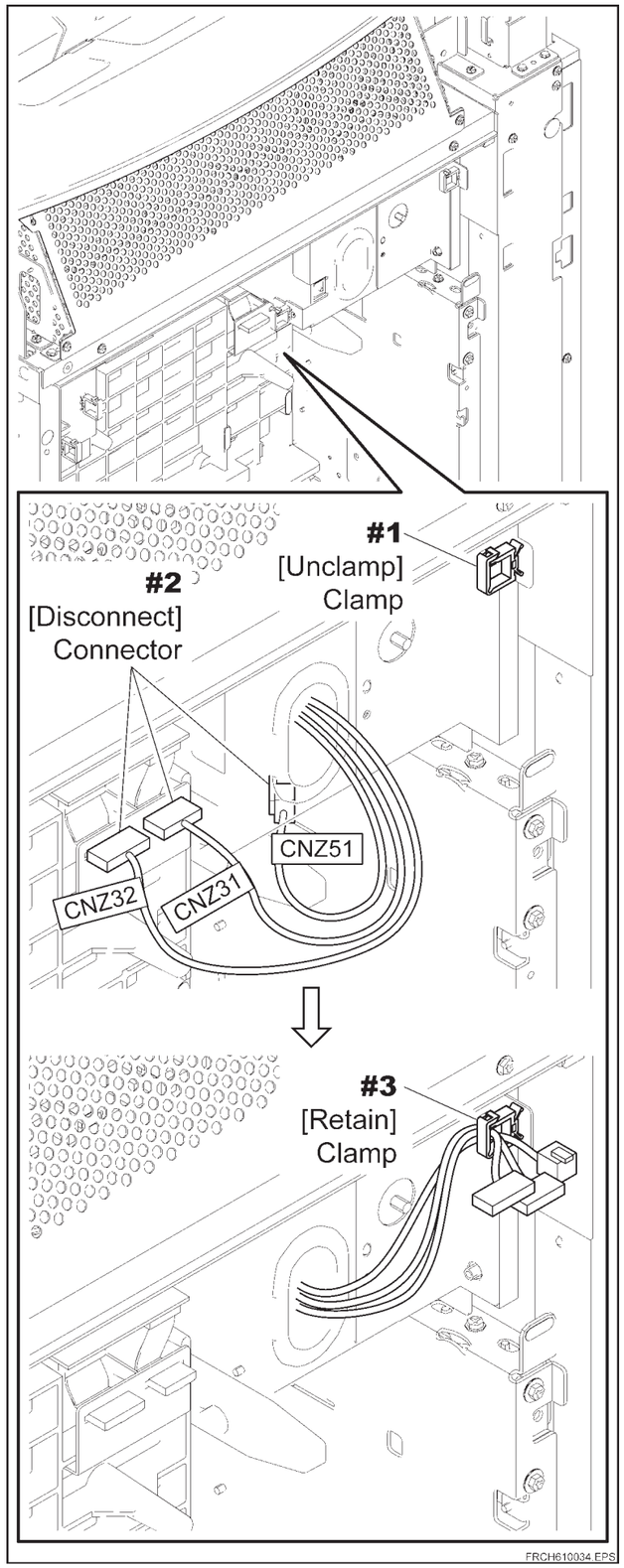
Be sure to retain the cables with the clamp. Otherwise, the cable and the connector might get caught when removing/reinstalling the scanning optics unit.



2. **Unclamp the clamp, and disconnect the connector. Retain the cable with the clamp for its protection.**

◆ NOTE ◆

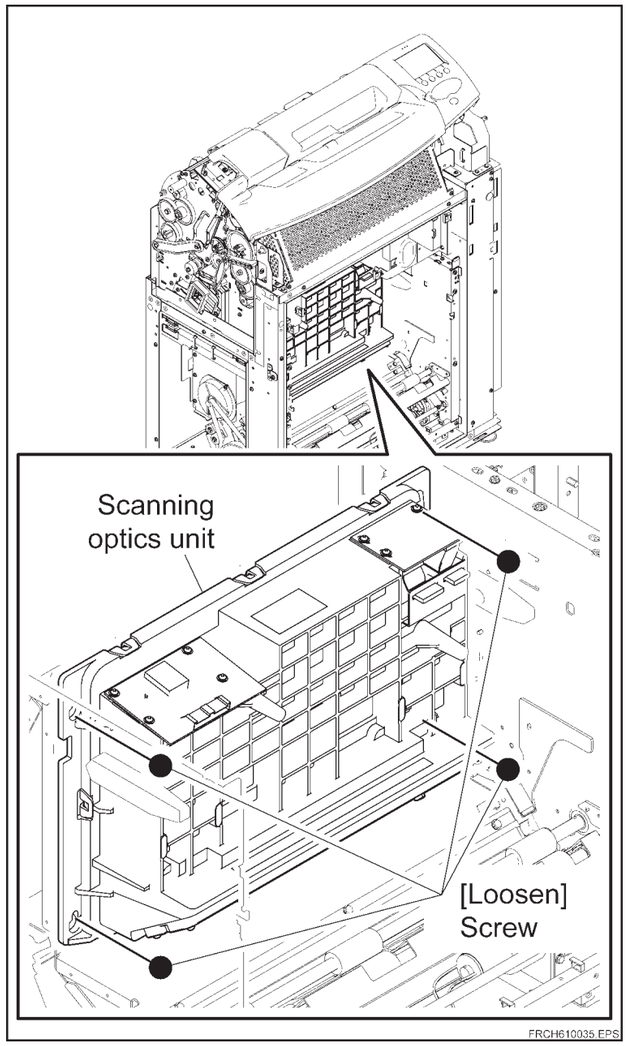
Be sure to retain the cables with the clamp. Otherwise, the cable and the connector might get caught when removing/reinstalling the scanning optics unit.



3. **Loosen the retaining screws of the scanning optics unit.**

◆ NOTE ◆

Just loosen the screws which retain the scanning optics unit, but do not remove them.



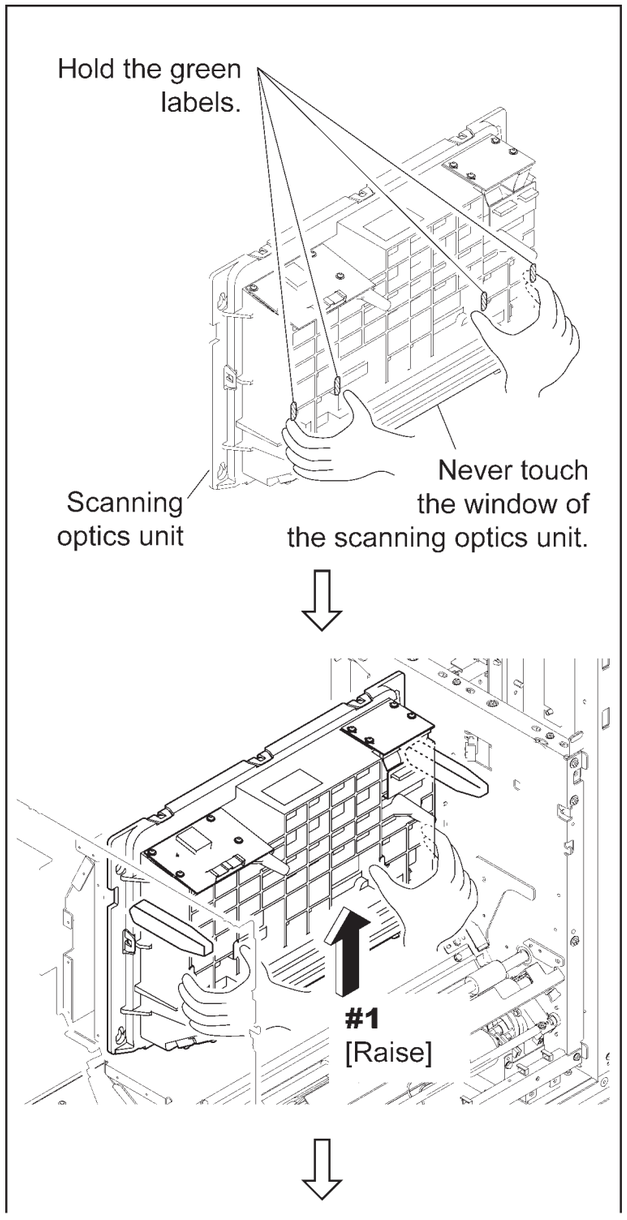
4. **Hold the green labels and raise the scanning optics unit. Make sure that holes on the scanning optics unit and screw heads are located where they do not interfere with each other. Then, pull out the scanning optics unit parallel to the guides.**

⚠ CAUTION

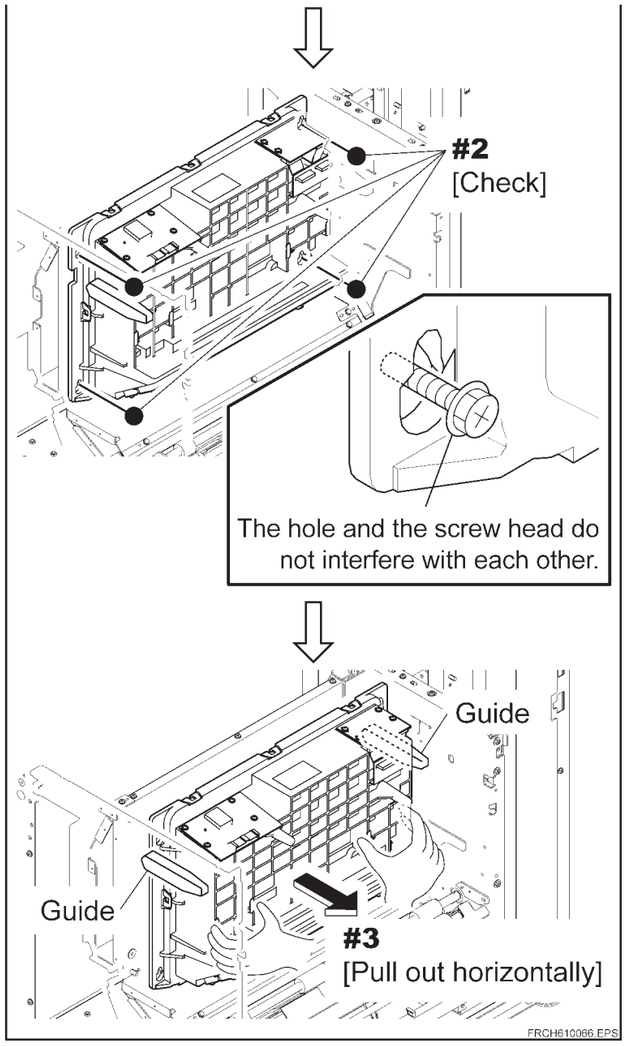
Never touch the window of the scanning optics unit. If fingerprints or the like are left on the window, the scanning optics unit must be replaced.

◆ NOTES ◆

- Hold the green labels to remove/ reinstall the scanning optics unit.
- Pull out the scanning optics unit parallel to the guides. If the unit is tilted, it may drop from the guides and result in damage of peripheral components or sensors.



FRCH610036.EPS

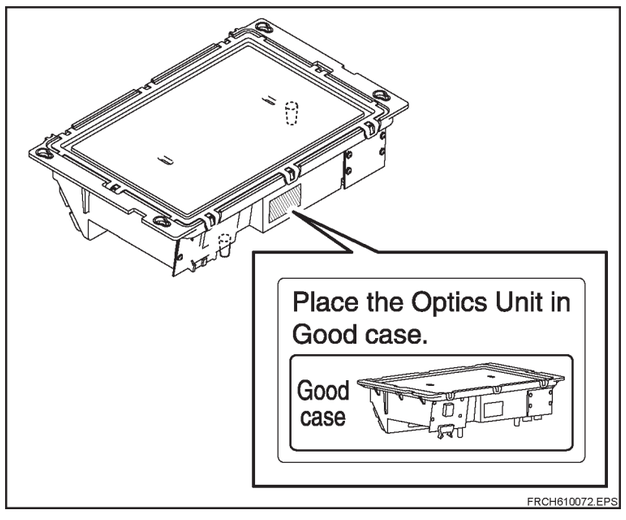


FRCH610066.EPS

5. **Place the scanning optics unit in the orientation as shown in the figure.**

◆ NOTE ◆

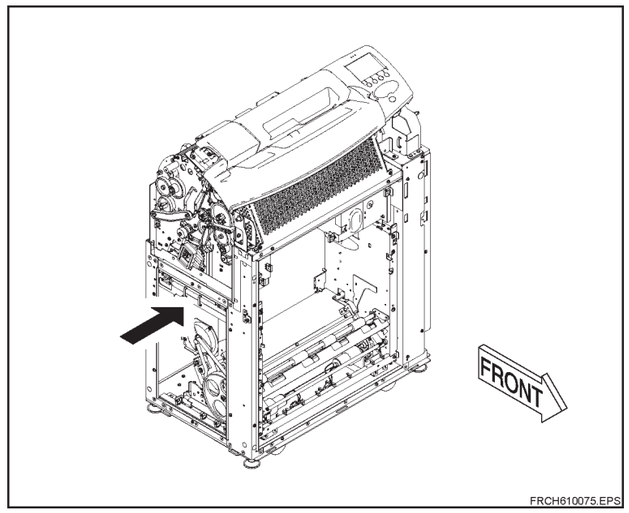
Place the scanning optics unit in the orientation as shown in the figure, according to the label indicating how to place the scanning optics unit.



FRCH610072.EPS

10.4 Removing the Subscanning Unit

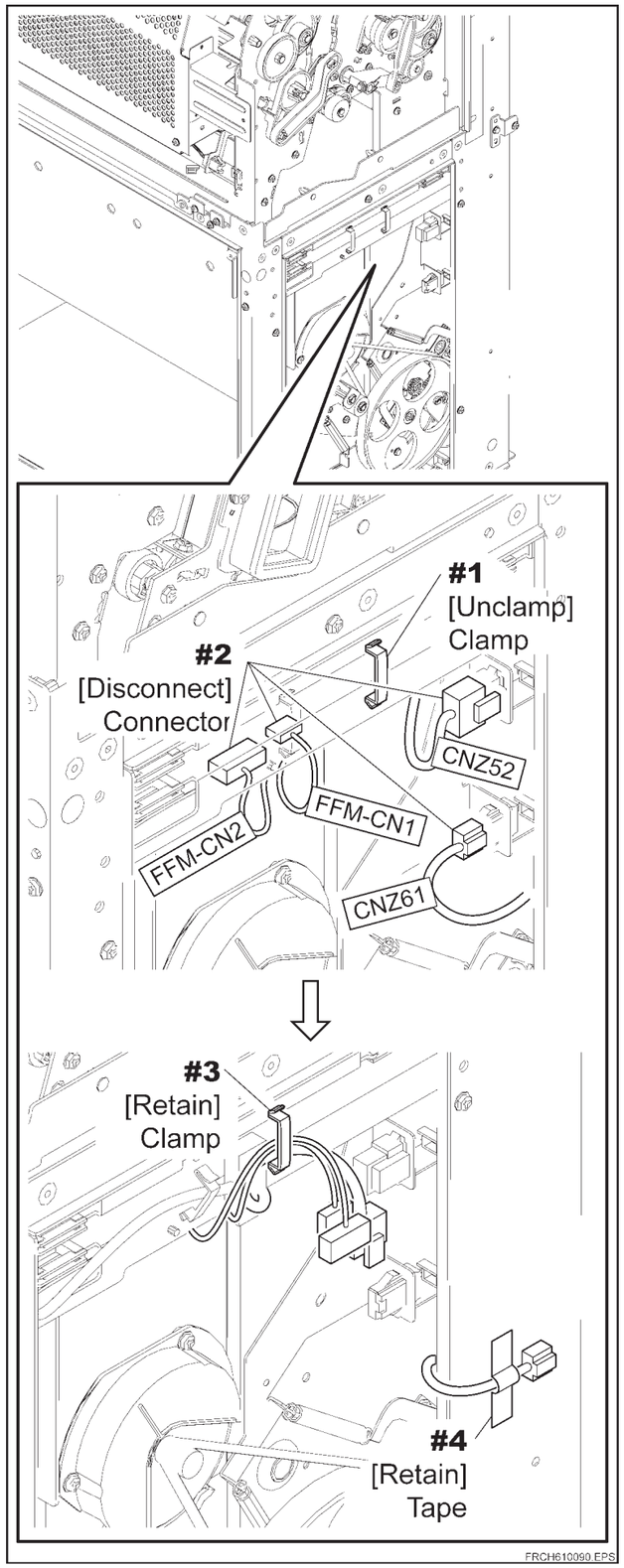
1. **Take the procedure 2 from the direction indicated by the arrow in the figure.**



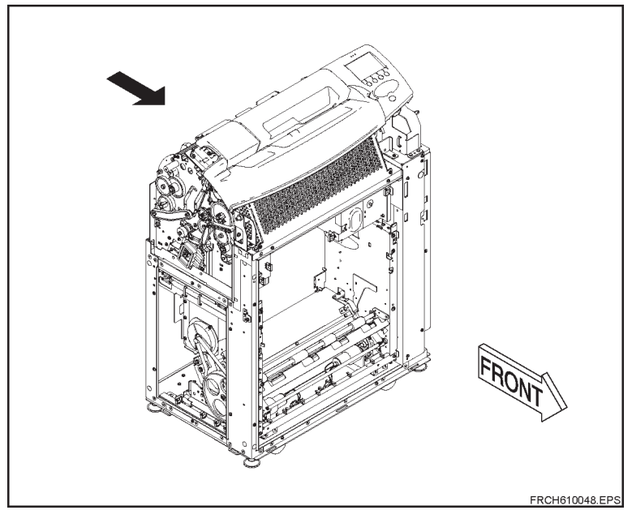
2. **Unclamp the clamp, and disconnect the connector. Retain the cables with the clamp and the tape for the protection of the cables.**

◆ ***NOTE*** ◆

Be sure to retain the cables with the clamp and the tape. Otherwise, the cable and the connector might get caught when removing/reinstalling the sub-scanning unit.



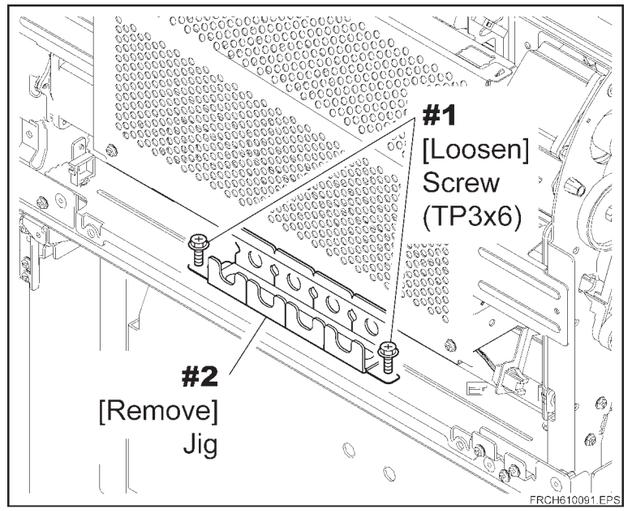
3. **Take the procedures 4 and 5 from the direction indicated by the arrow in the figure.**



4. **Loosen the screws and then remove the jig.**

◇ *REFERENCE* ◇

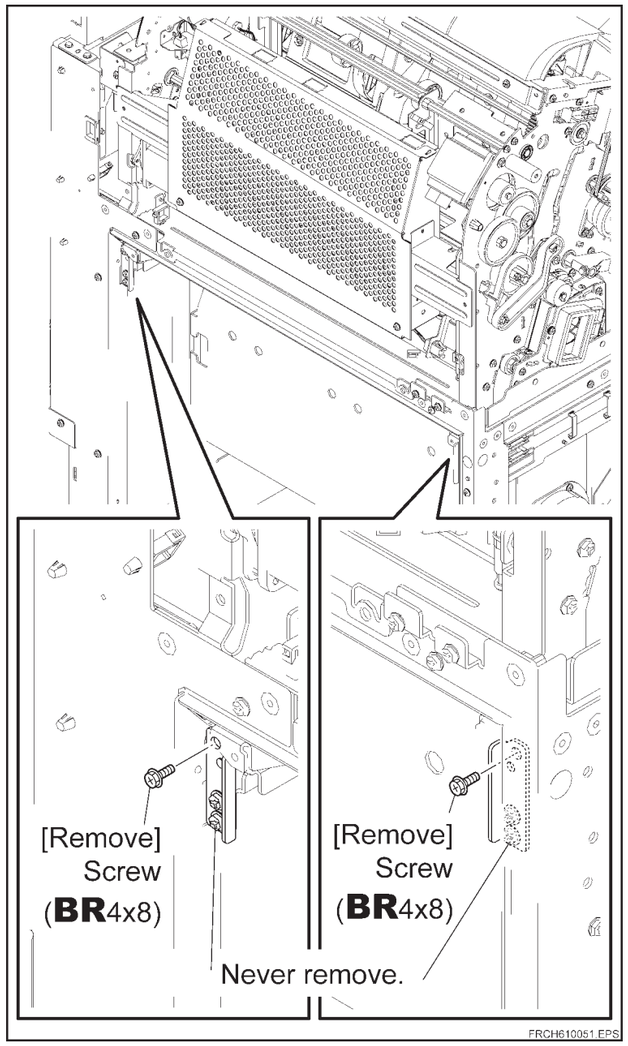
After subscanning unit removal, mount the removed jig on the vibration-proof rubber assembly.



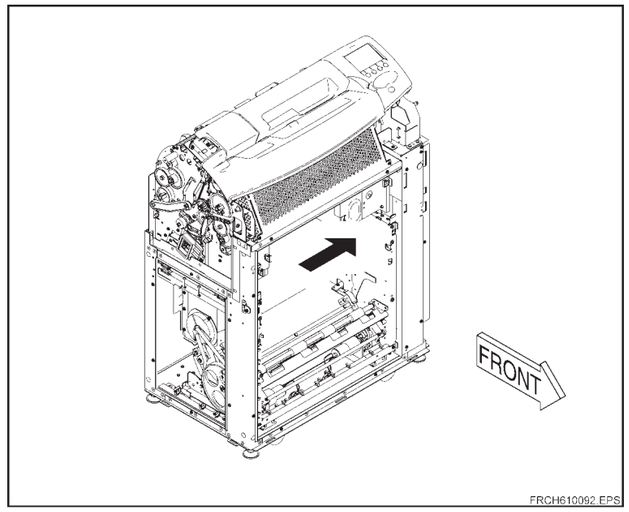
5. **Remove the retaining screws of the subscanning unit.**

⚠ *CAUTION*

Never remove red painted screws.



6. **Take the procedure 7 from the direction indicated by the arrow in the figure.**



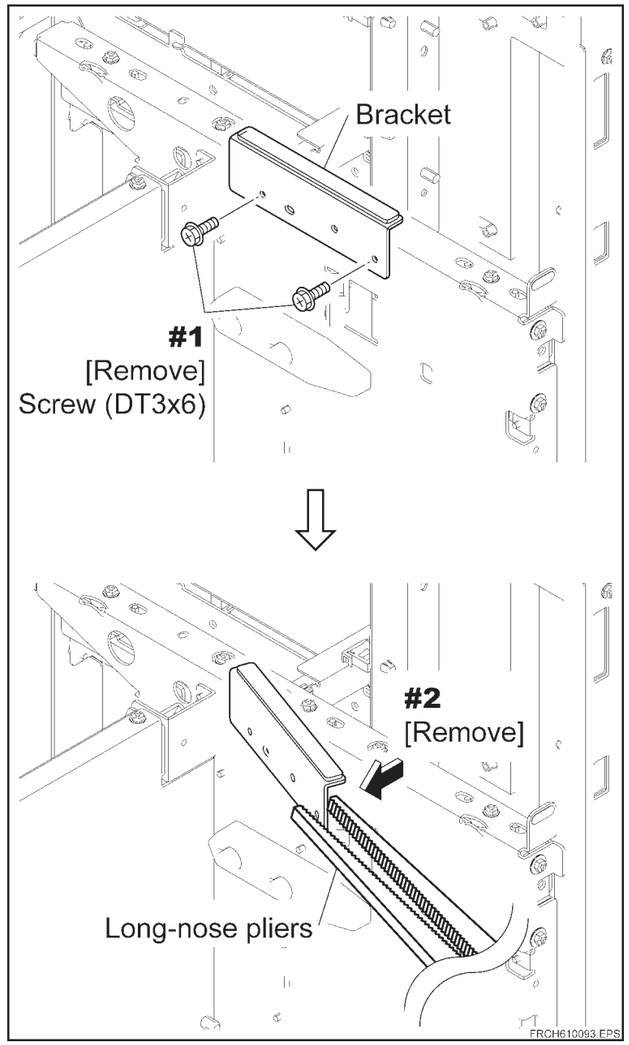
7. **Remove the screws. With long-nose pliers, remove the bracket.**

◆ *NOTE* ◆

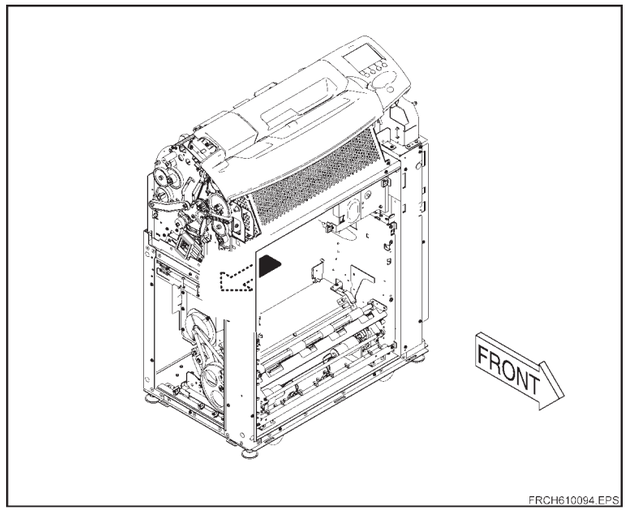
Exercise care not to drop the bracket. If the bracket drops, it may damage nearby parts.

◇ *REFERENCE* ◇

The removed bracket is a part for providing protection against vibration during transit. Therefore, it need not be installed after completion of the procedure.



8. **Take the procedure 9 from the direction indicated by the arrow in the figure.**



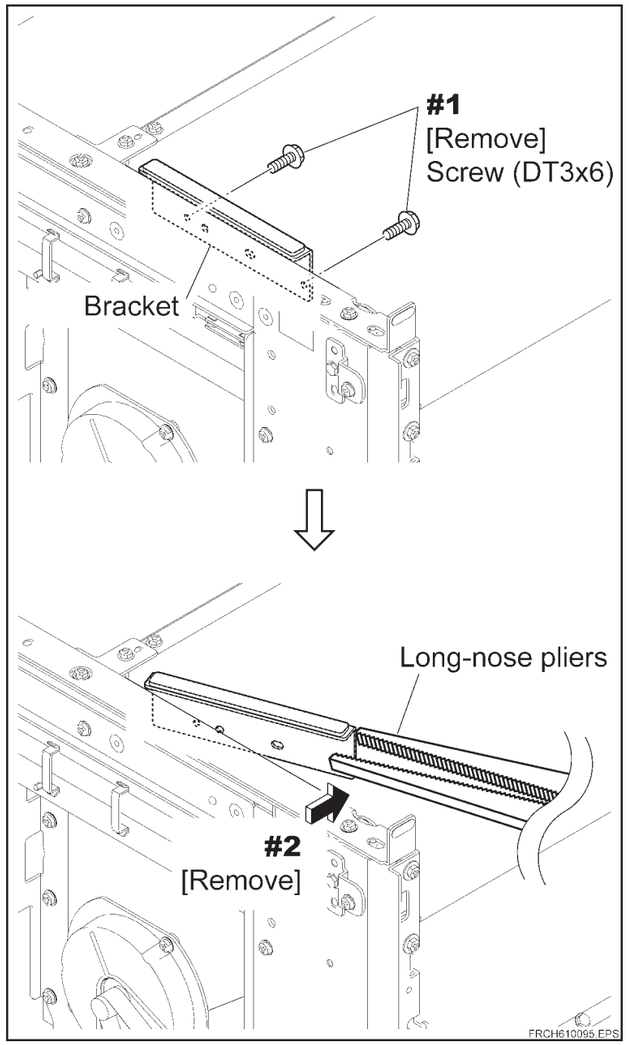
9. **Remove the screws. With long-nose pliers, remove the bracket.**

◆ *NOTE* ◆

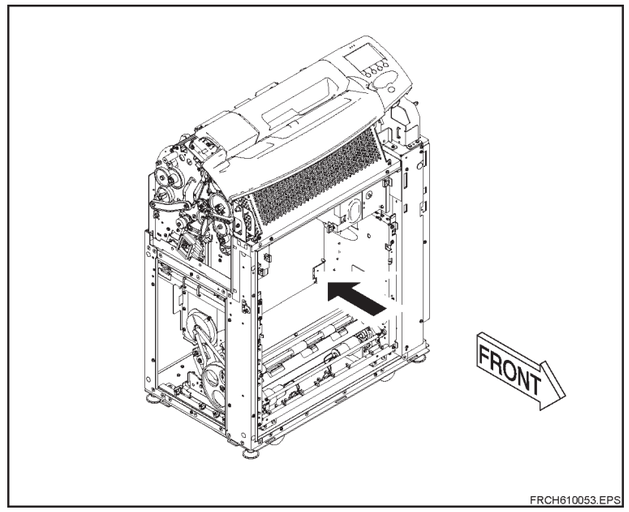
Exercise care not to drop the bracket. If the bracket drops, it may damage nearby parts.

◇ *REFERENCE* ◇

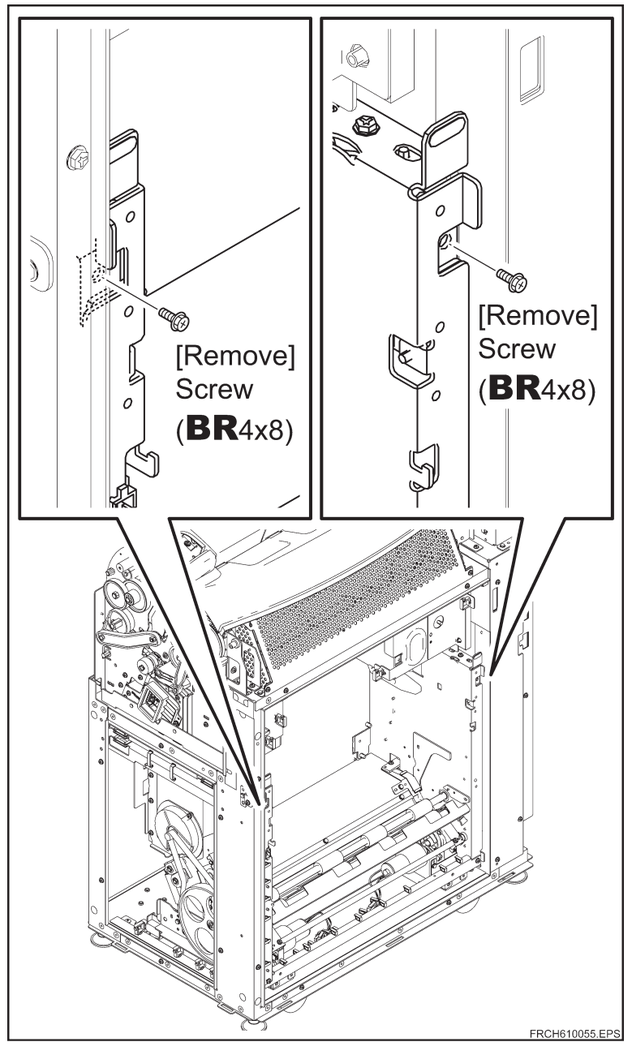
The removed bracket is a part for providing protection against vibration during transit. Therefore, it need not be installed after completion of the procedure.



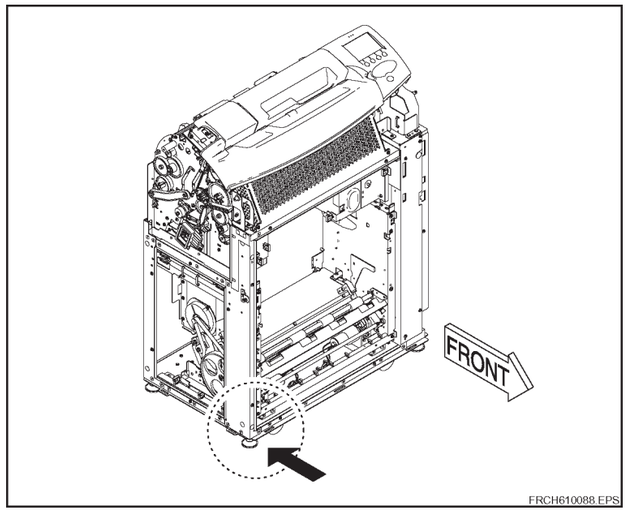
10. **Take the procedure 11 from the direction indicated by the arrow in the figure.**



11. **Remove the retaining screws of the subscanning unit.**



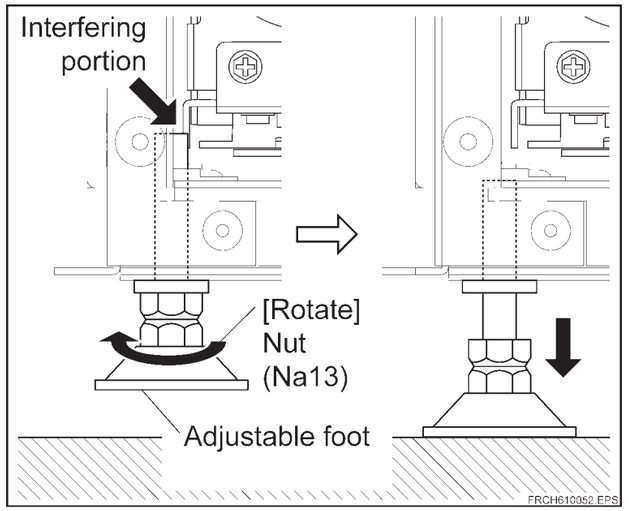
12. **Take the procedure 13 from the direction indicated by the arrow in the figure.**



13. **Rotate the nut, and lower the adjustable foot.**

◆ ***NOTE*** ◆

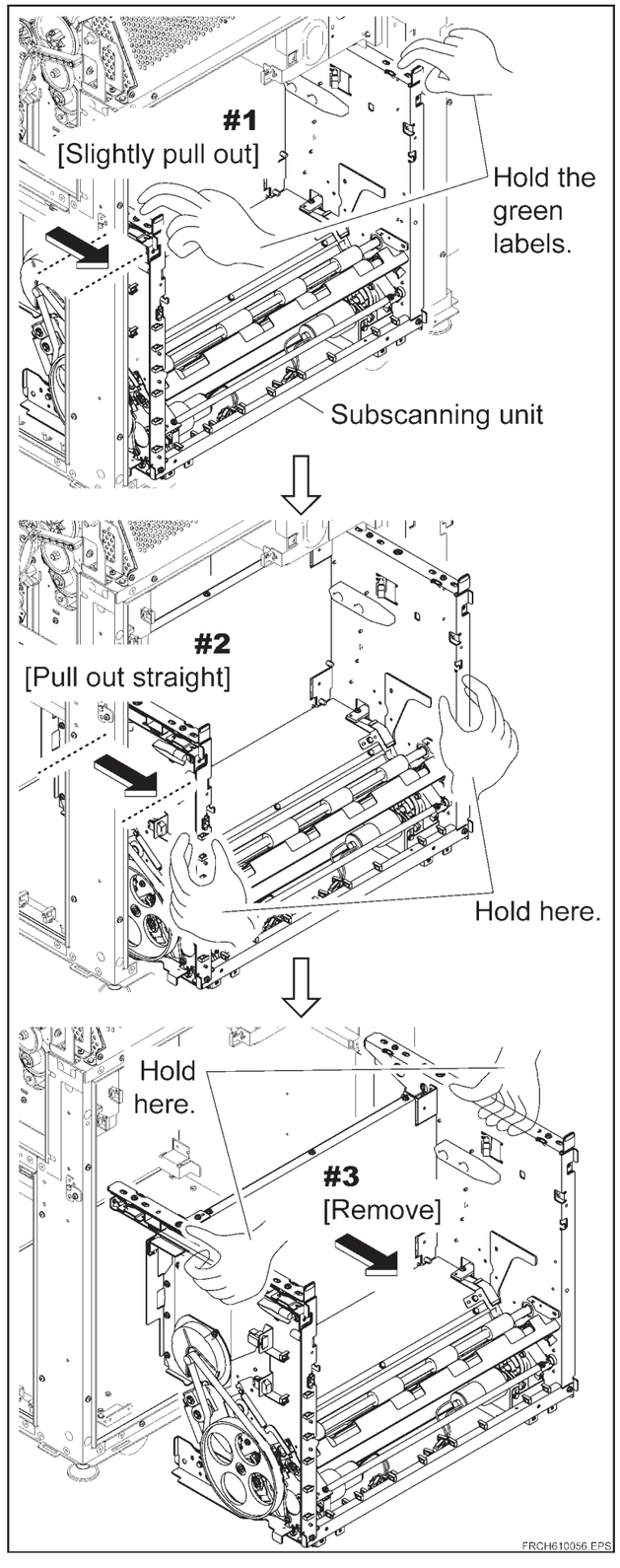
Be sure to rotate the nut before lowering the adjustable foot. Otherwise, the shaft of the adjustable foot might interfere with the subscanning unit, preventing the subscanning unit from being removed.



14. **Holding the green labels, pull out the subscanning unit slightly forward. Shift the held positions, pull out the subscanning unit straight, and remove the subscanning unit while holding its upper part.**

◆ ***NOTE*** ◆

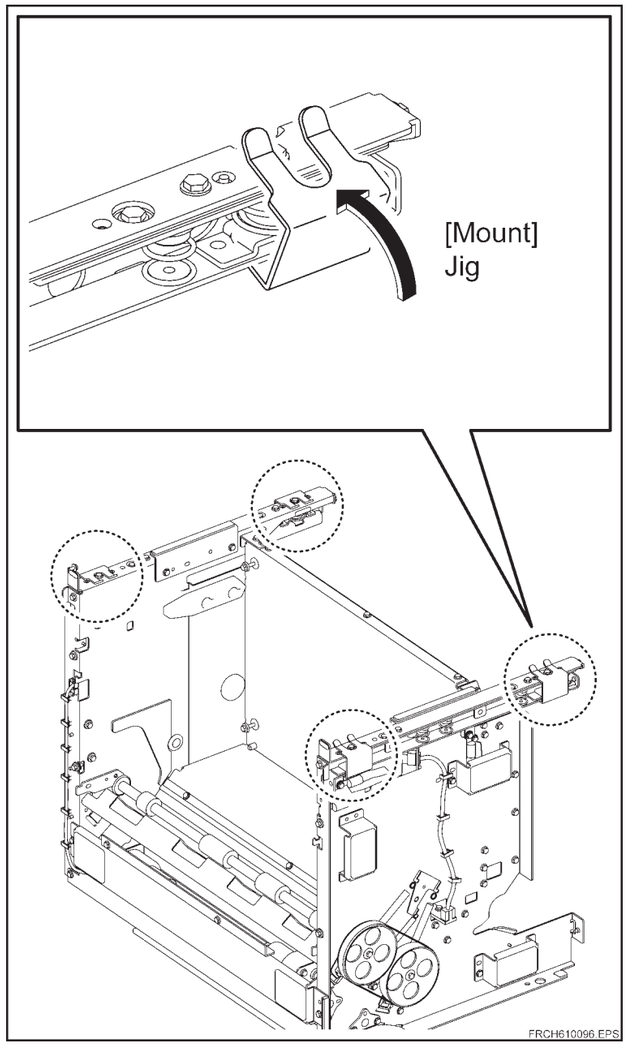
Be sure to hold the specified positions to pull out straight the subscanning unit. Otherwise, part of the subscanning unit might come into contact with the housing, causing damage.



15. **Have on hand the jig that was removed in step 4. Mount it on the vibration-proof rubber assembly.**

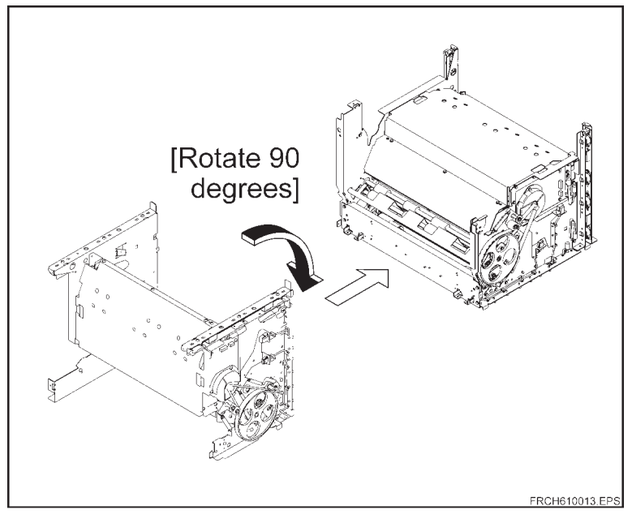
◆ ***NOTE*** ◆

After subscanning unit removal, be sure to mount the jig. If you perform the procedure without mounting the jig, the vibration-proof rubber assembly may fail to properly function.

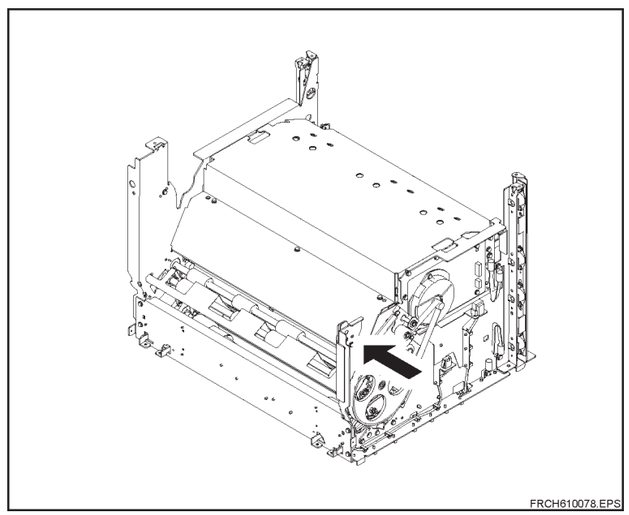


10.5 Cleaning the Guides, Center Rollers, and Rubber Rollers

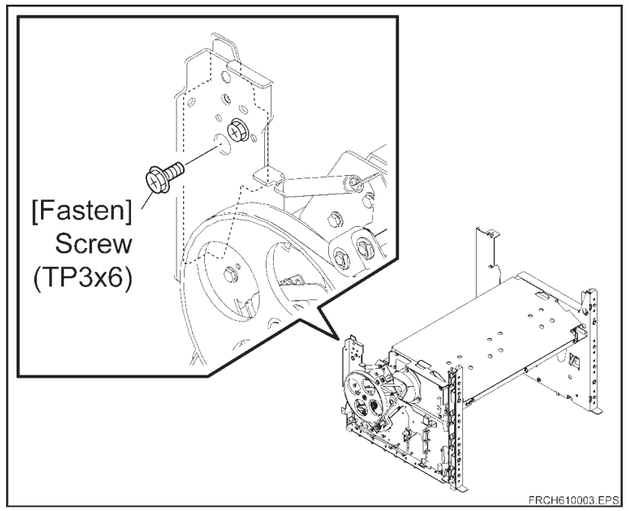
1. **Place the subscanning unit in the orientation indicated in the figure.**



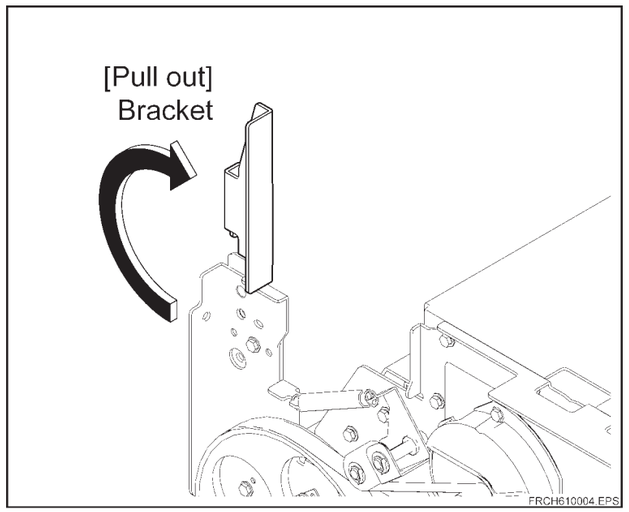
2. **Take the procedures from 3 to 5 from the direction indicated by the arrow in the figure.**



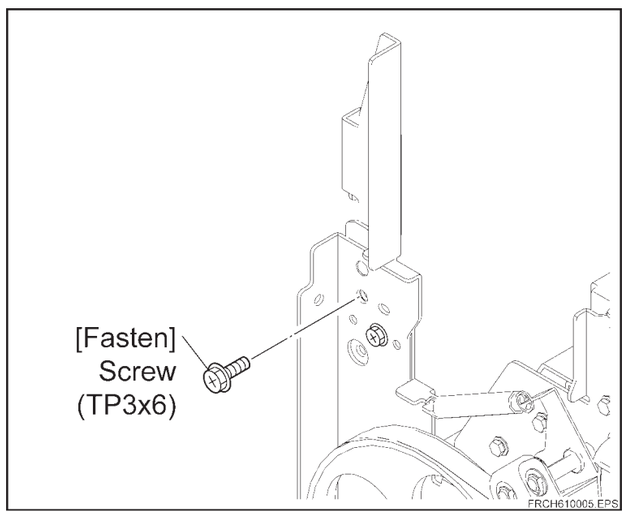
3. **Remove the screw.**



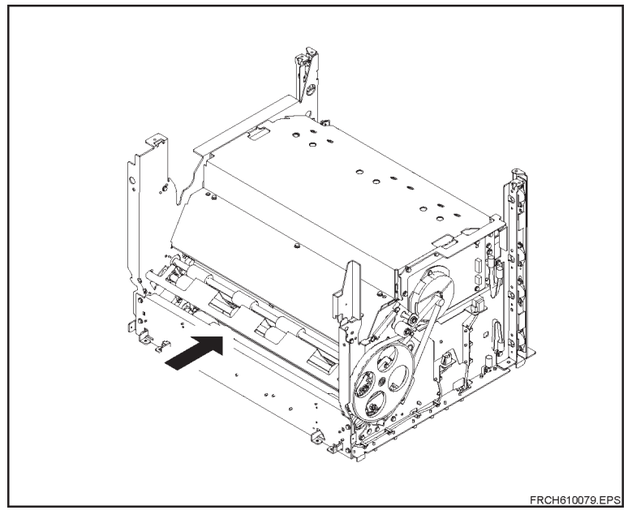
4. **Rotate the bracket and pull it out of the subscanning unit.**



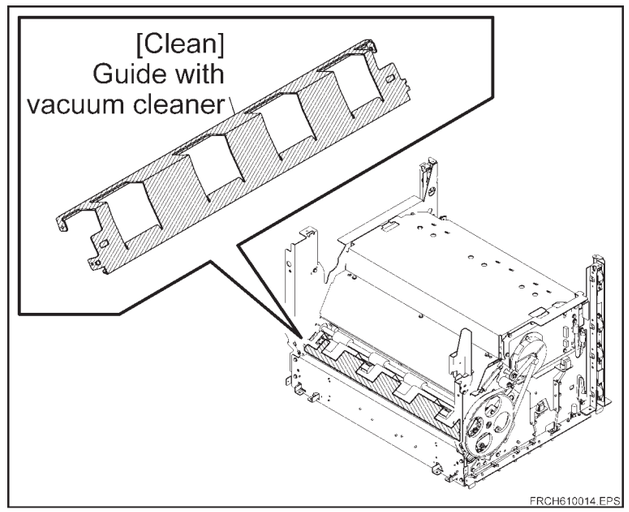
5. **Reinstall the screw.**



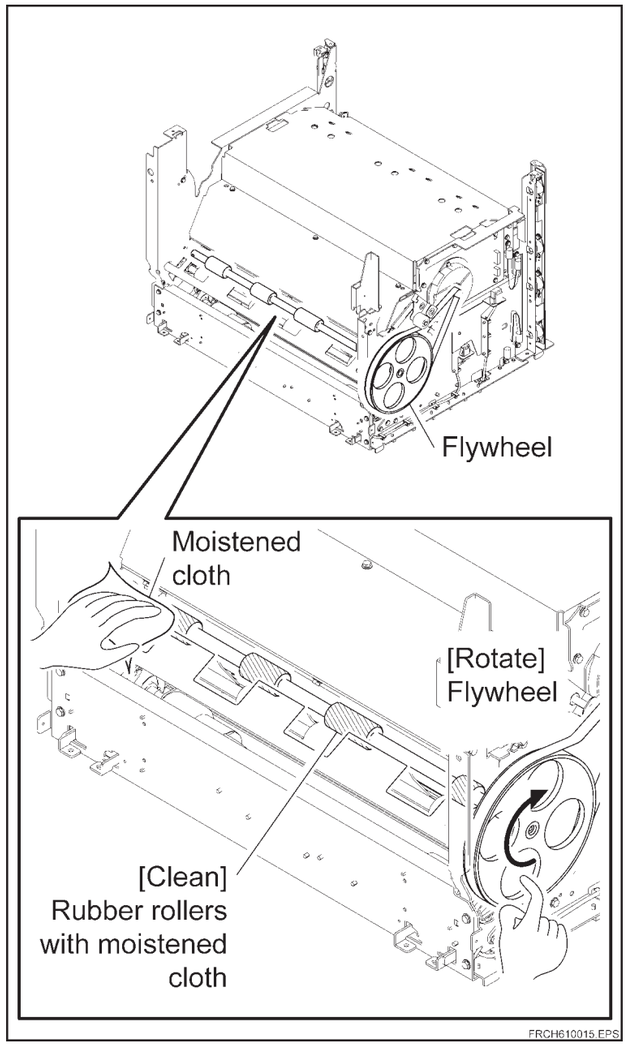
6. **Take the procedures from 7 to 9 from the direction indicated by the arrow in the figure.**



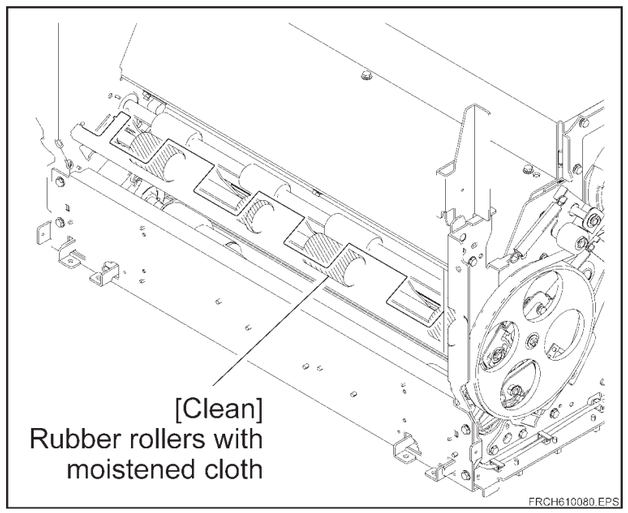
7. **Clean the guide with a vacuum cleaner.**



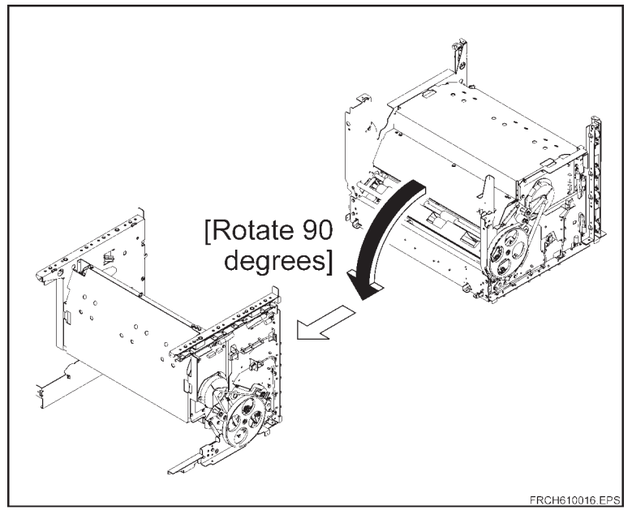
8. **Push the moistened cloth against the rubber rollers. Clean the rubber rollers while rotating them via the flywheel.**



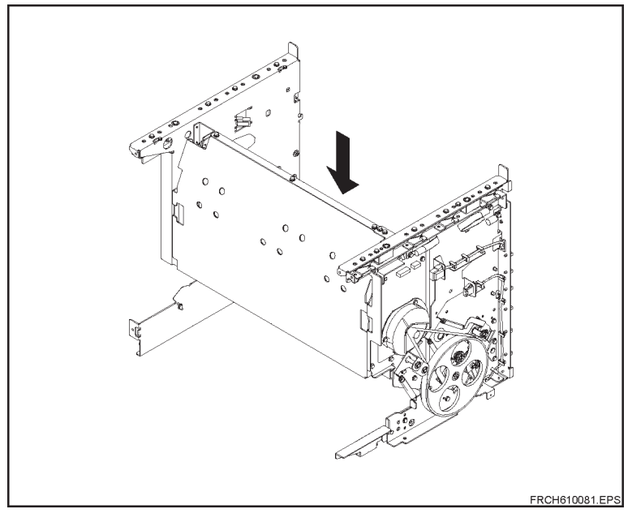
9. **Clean the rubber rollers with a moistened cloth.**



10. **Place the subscanning unit in the orientation indicated in the figure.**



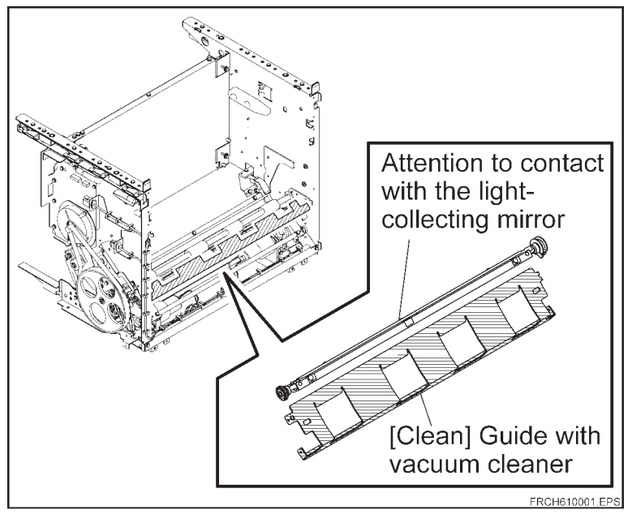
11. **Take the procedures from 12 to 14 from the direction indicated by the arrow in the figure.**



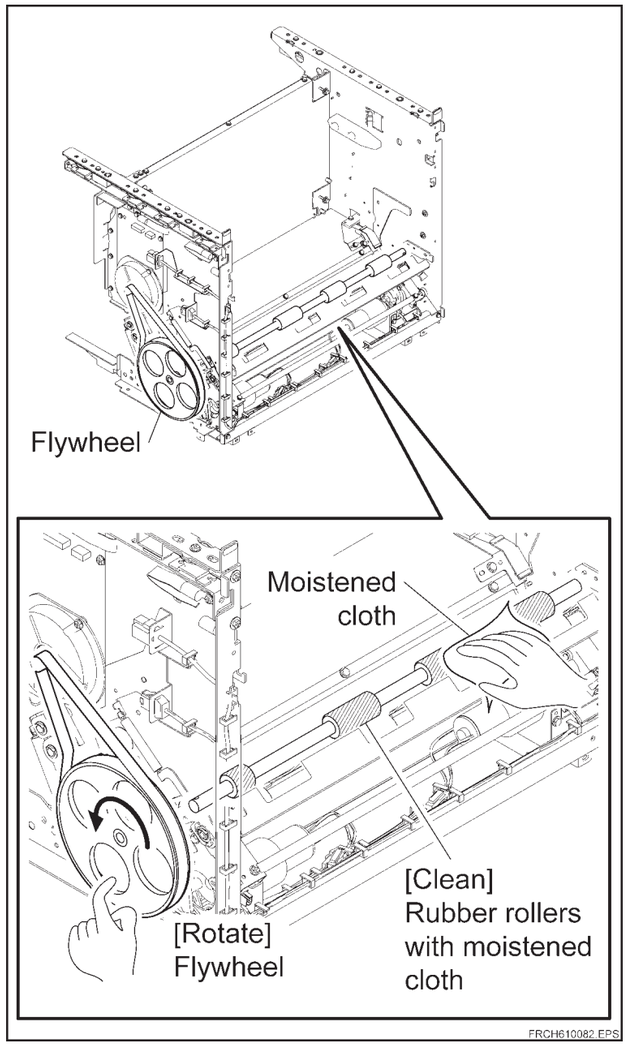
12. **Clean the guide with a vacuum cleaner.**

◆ NOTE ◆

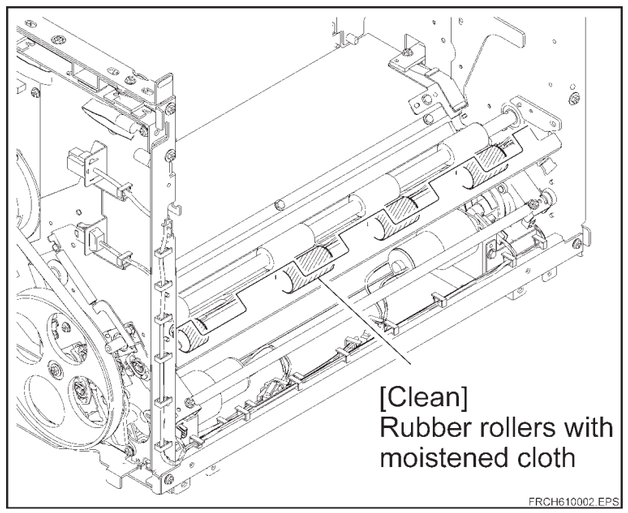
Exercise care not to damage the light-receiving face of the light-collecting mirror when cleaning the guide with the vacuum cleaner.



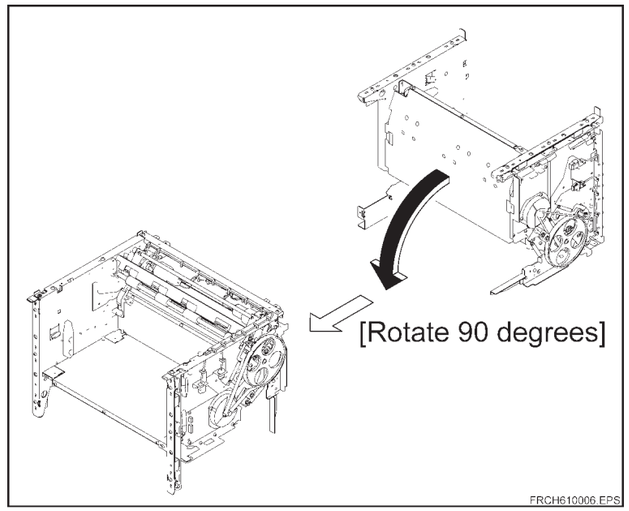
13. **Push the moistened cloth against the rubber rollers. Clean the rubber rollers while rotating them via the flywheel.**



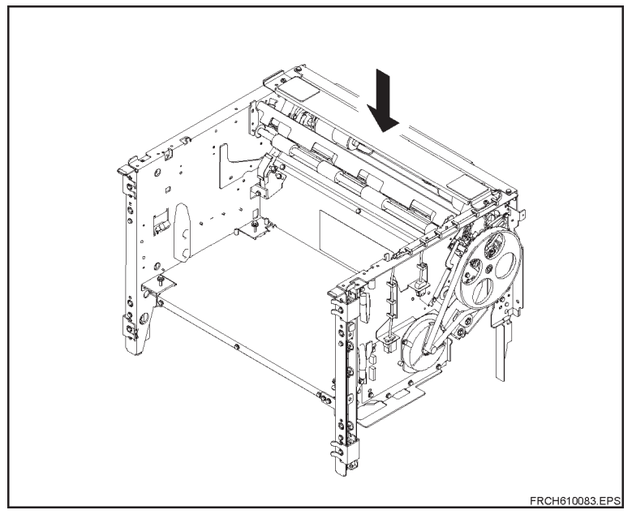
14. **Clean the rubber rollers with a moistened cloth.**



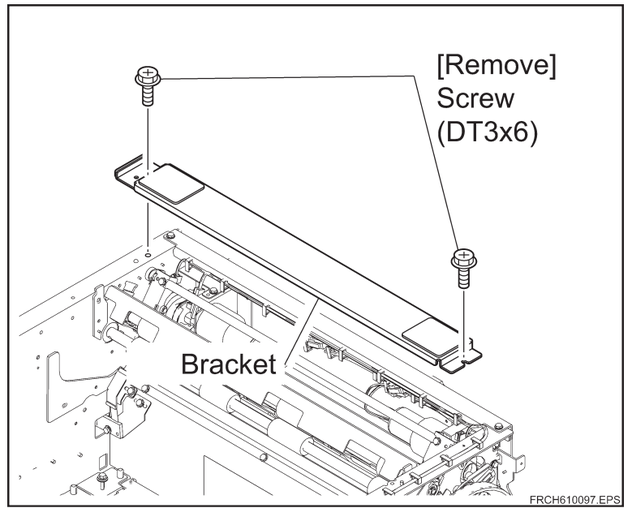
15. **Place the subscanning unit in the orientation indicated in the figure.**



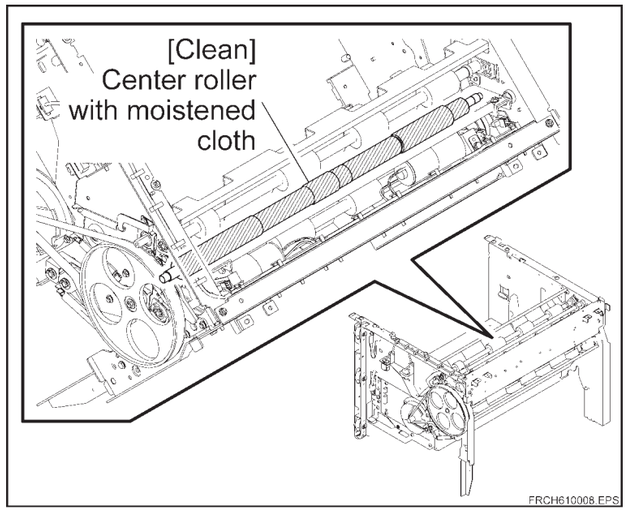
16. **Take the procedures from 17 to 19 from the direction indicated by the arrow in the figure.**



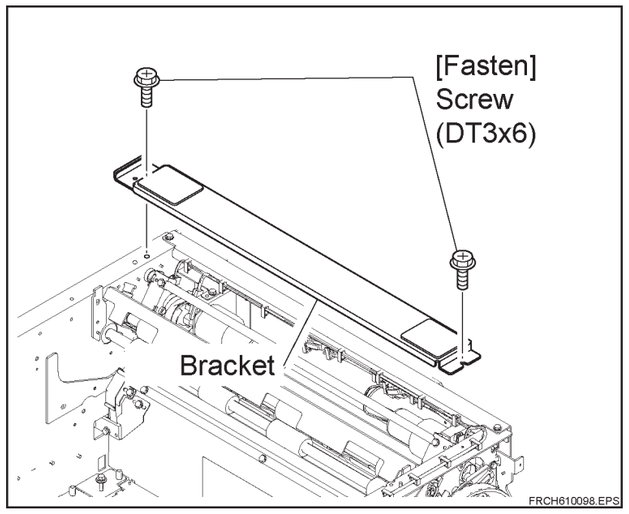
17. **Remove the bracket.**



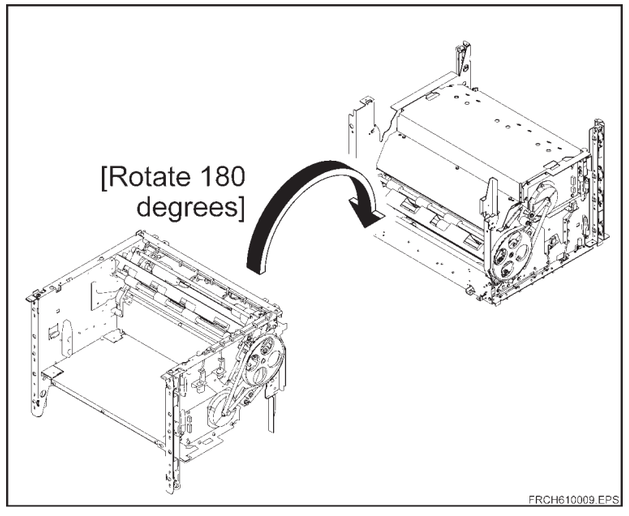
18. **Clean the center roller with a moistened cloth.**



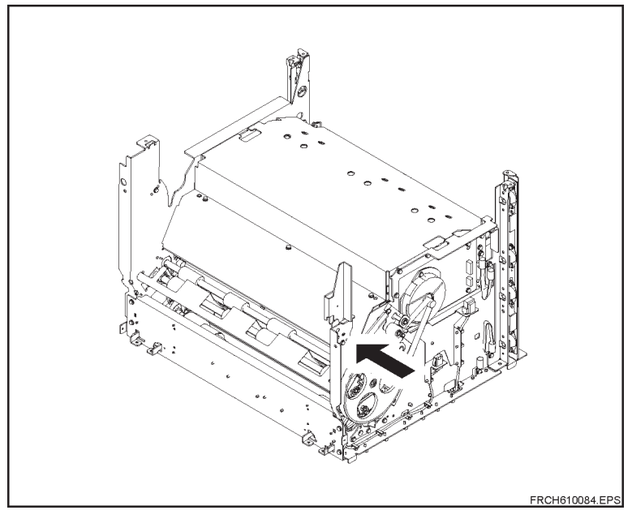
19. **Install the bracket.**



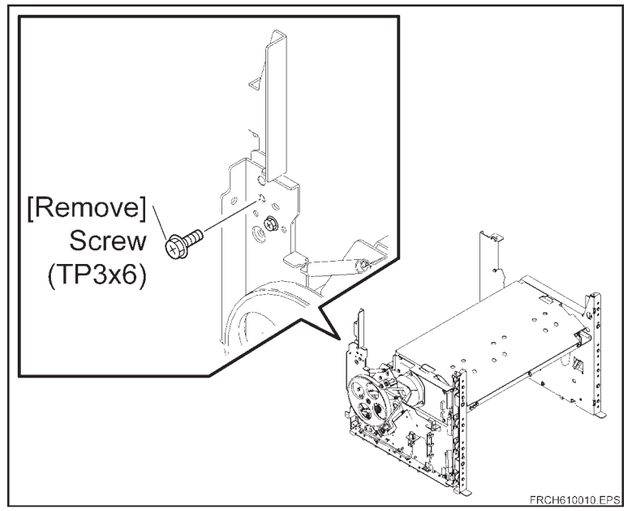
20. **Place the subscanning unit in the orientation indicated in the figure.**



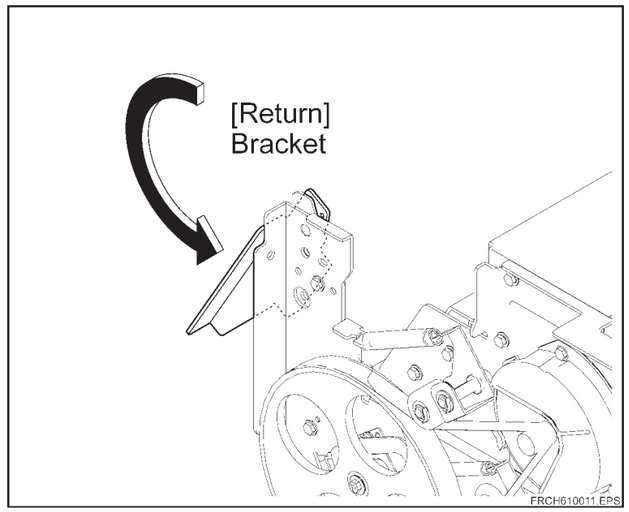
21. **Take the procedures from 22 to 24 from the direction indicated by the arrow in the figure.**



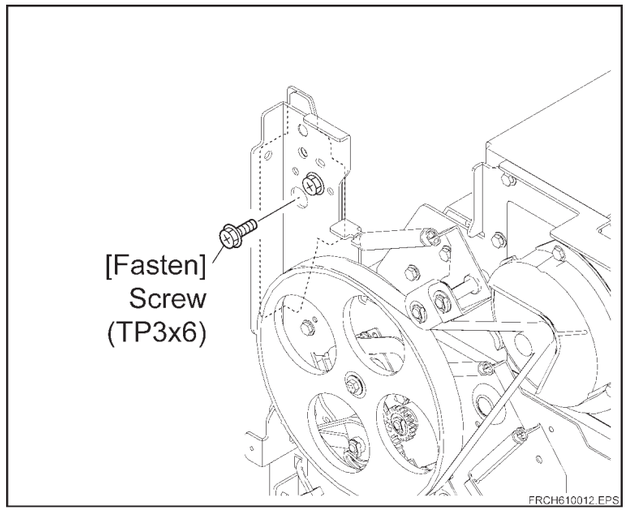
22. **Remove the screw.**



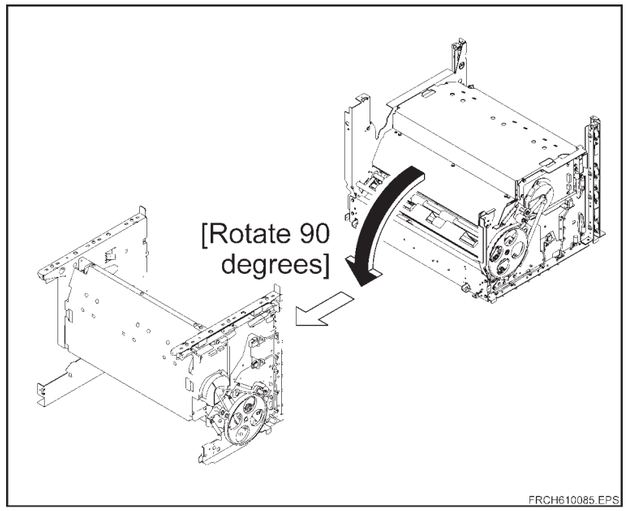
23. **Rotate the bracket, and return it into the subscanning unit.**



24. **Reinstall the screw.**

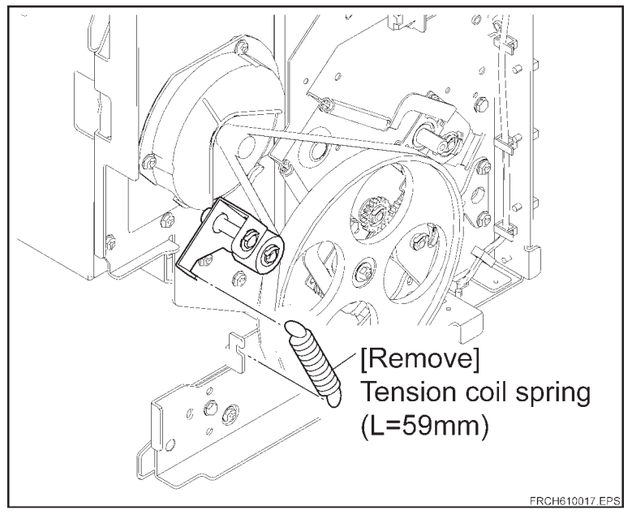


25. **Place the subscanning unit in the orientation indicated in the figure.**



10.6 Cleaning the Flywheel (Large) and Kapton® Belt

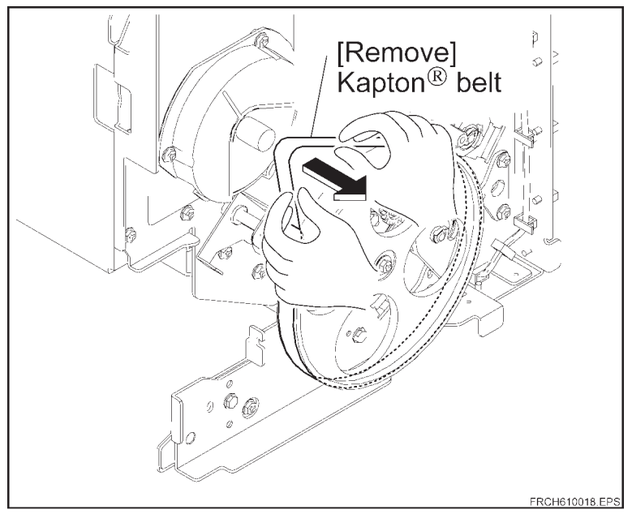
1. **Remove the tension coil spring.**



2. **Support the Kapton® belt on the positions indicated in the figure, and remove it.**

◆ ***NOTE*** ◆

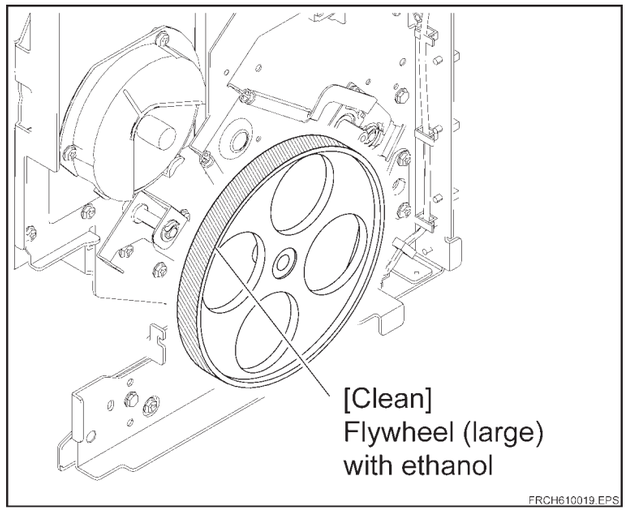
When removing the Kapton® belt, exercise care not to turn the belt inside out. The machine might not work normally.



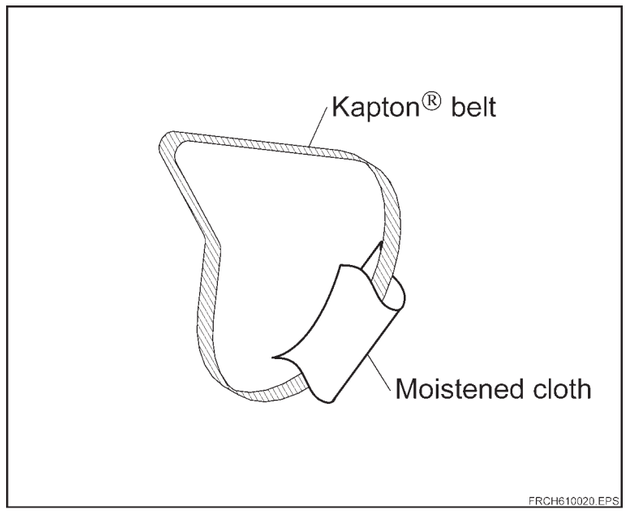
3. **Clean the flywheel (large) with a cloth dampened with ethanol.**

◆ ***INSTRUCTION*** ◆

Do not damage the contact face of the Kapton® belt.



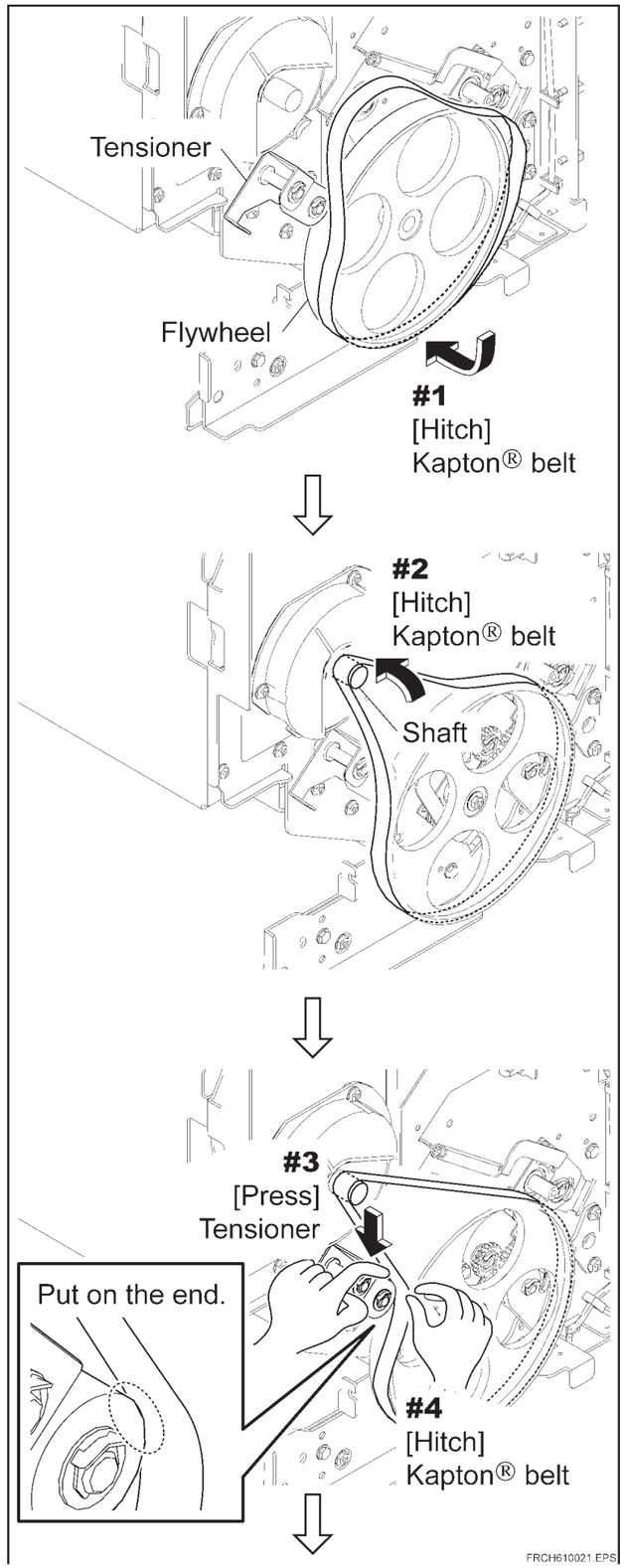
4. **Clean the Kapton® belt with a moistened cloth.**

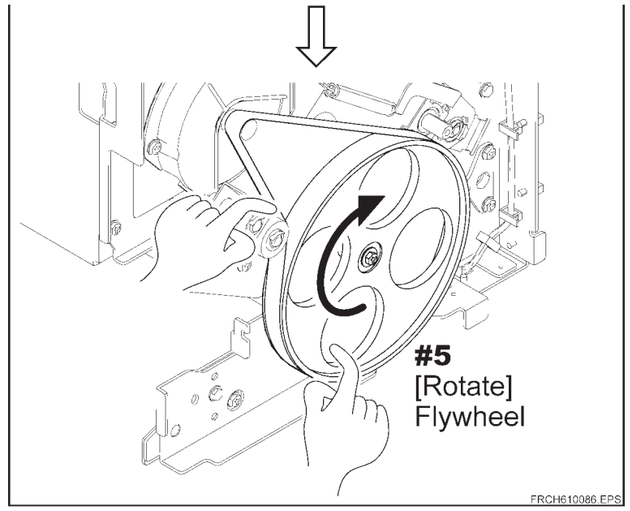


5. **Hitch the lower part of the Kapton® belt on the flywheel, and hitch the upper part on the shaft. While pressing the tensioner from upward, put the end of the Kapton® belt on the tensioner. While rotating the flywheel, mount the Kapton® belt.**

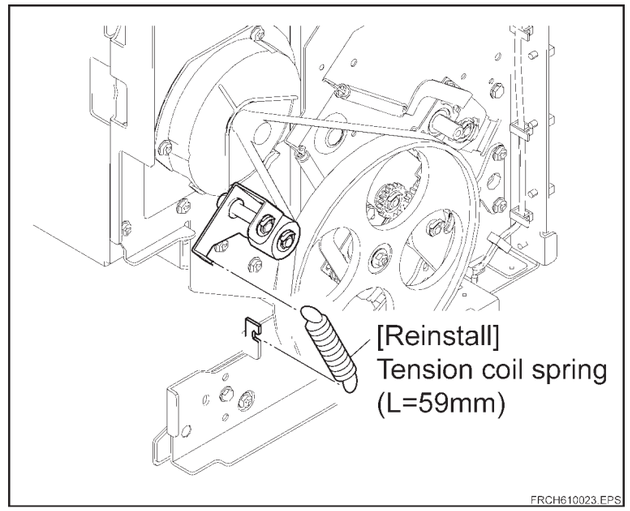
◆ ***NOTE*** ◆

When reinstalling the Kapton ® belt, exercise care not to turn the belt inside out. The machine might not work normally.

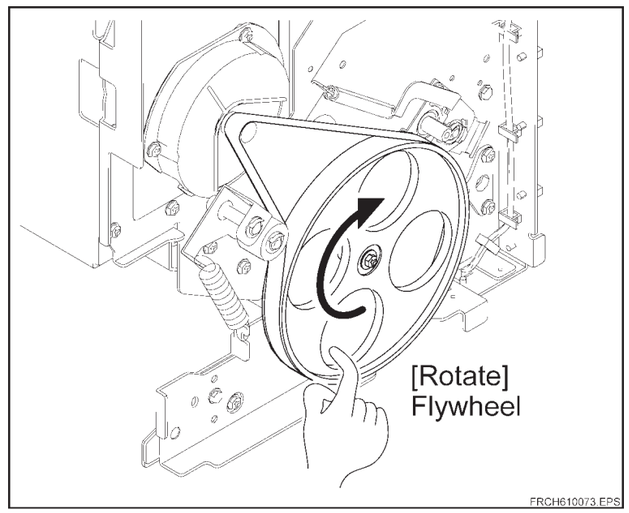




6. **Reinstall the tension coil spring.**

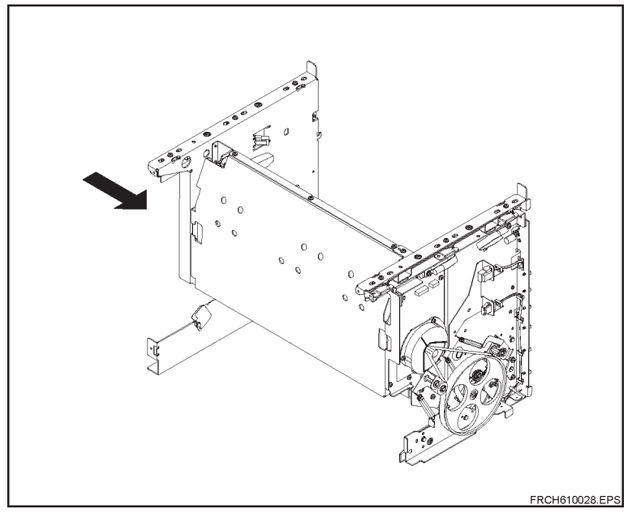


7. **Rotate the flywheel, and check to make sure that the Kapton® belt does not come off.**



10.7 Cleaning the Flywheel (Small) and Rubber Belt

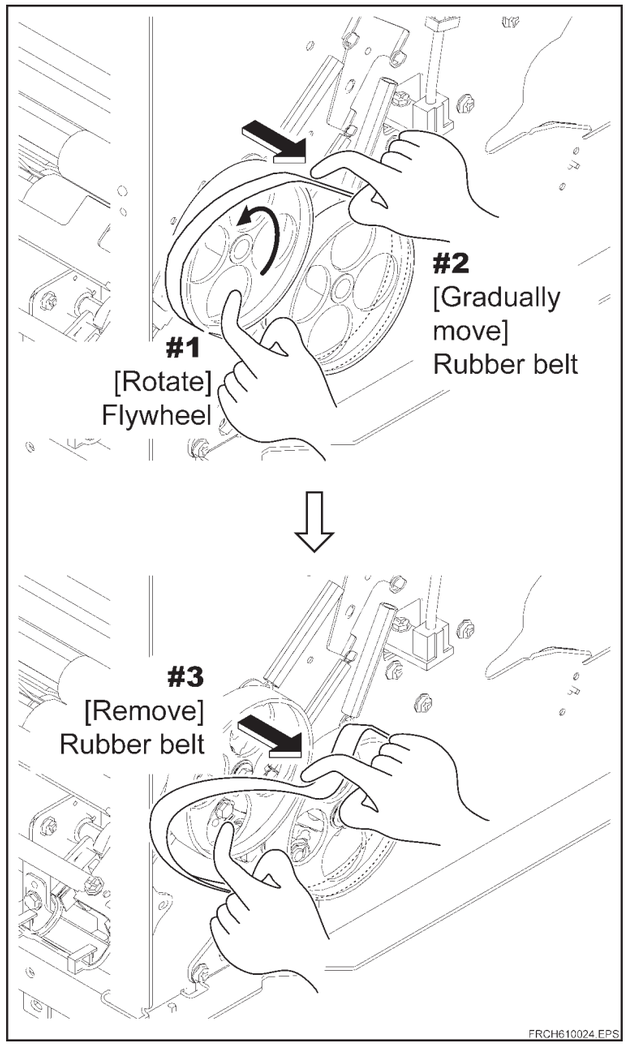
1. **Take the procedures from 2 to 6 from the direction indicated by the arrow in the figure.**


FRCH610028.EPS

2. **While rotating the flywheel, gradually move the rubber belt toward you and remove it.**

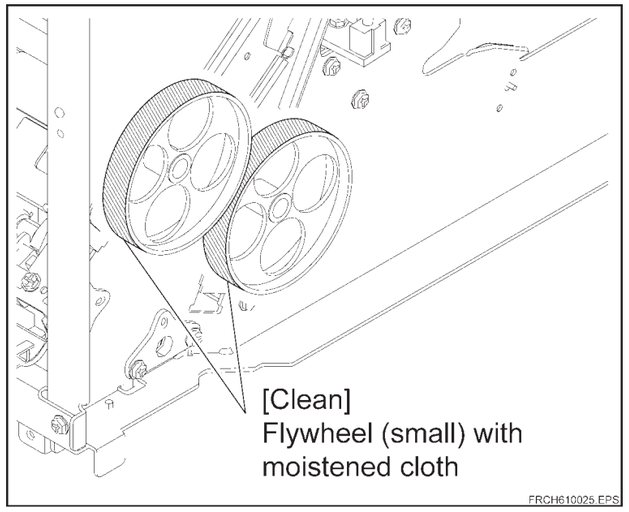
⚠ CAUTION

Do not pull only the rubber belt to remove it without rotating the flywheel. If the rubber belt goes slack, the machine may not work normally.



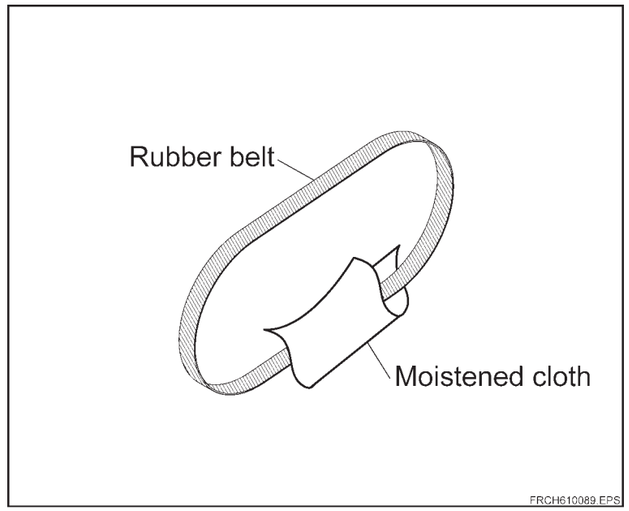
FRCH610024.EPS

3. **Clean the flywheel (small) with a moistened cloth.**



FRCH610025.EPS

4. **Clean the rubber belt with a moistened cloth.**



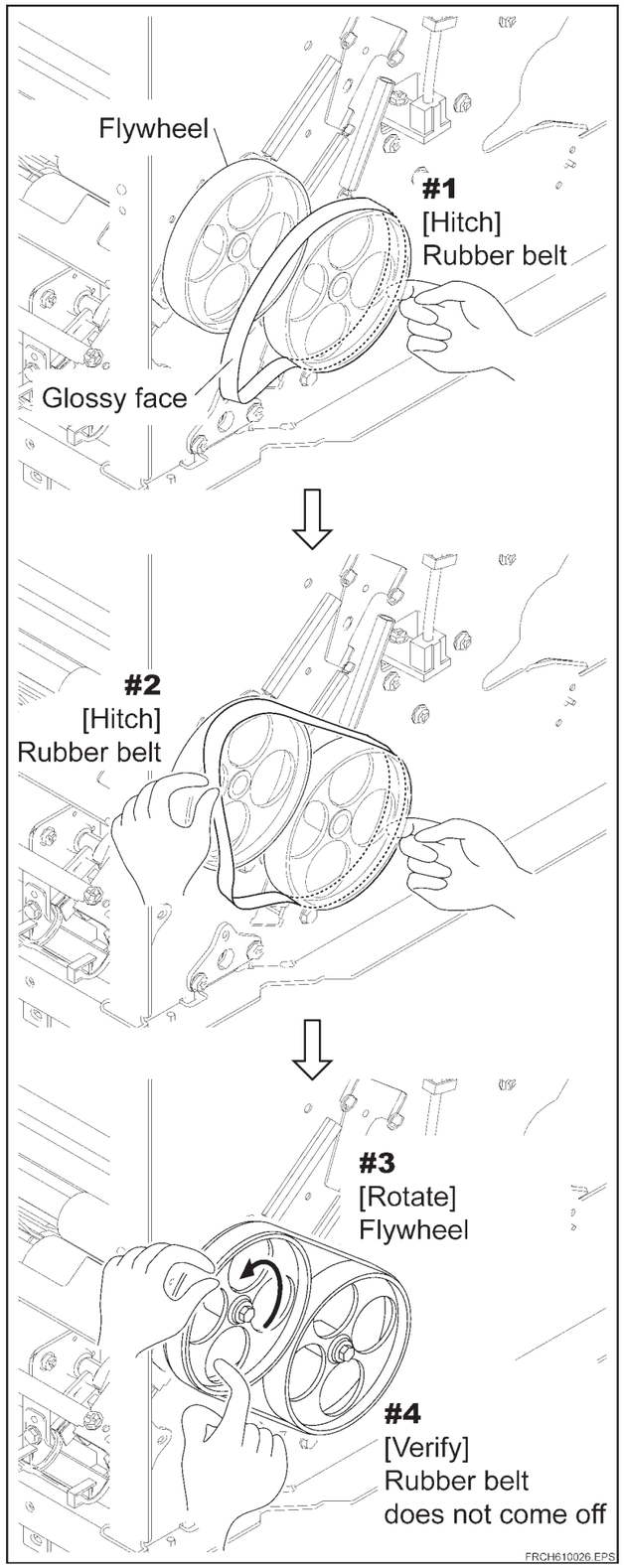
5. **Hitch the rubber belt on the lower flywheel, and then hitch on the upper flywheel. Put on the rubber belt while rotating the flywheel, and check to make sure that the rubber belt does not come off.**

⚠ CAUTION

Do not pull only the rubber belt to reinstall it without rotating the flywheel. If the rubber belt goes slack, the machine may not work normally.

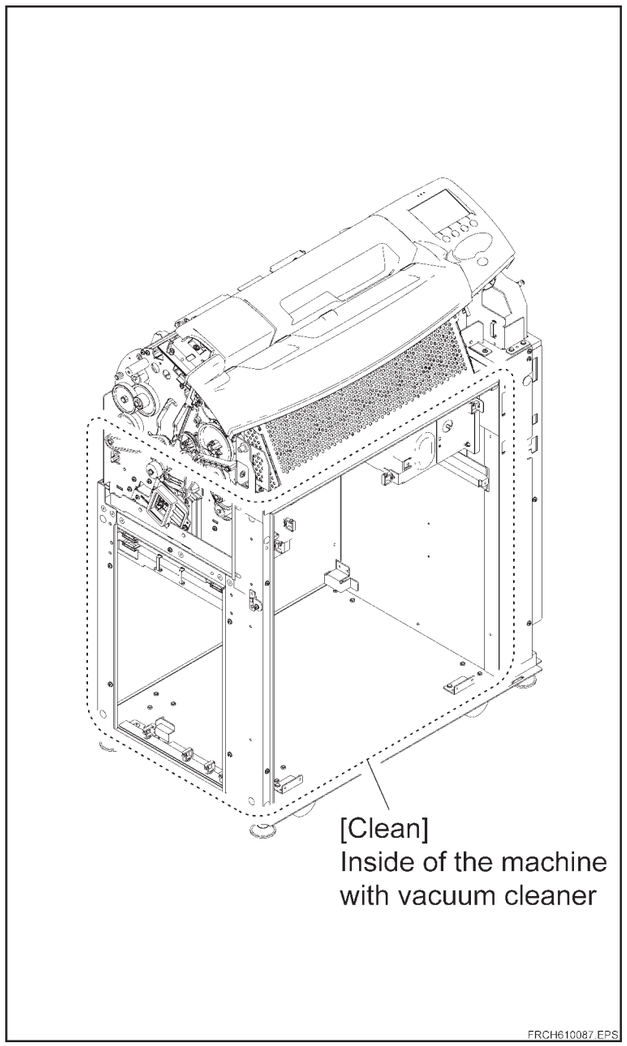
◆ *NOTE* ◆

Reinstall the rubber belt with its glossy face facing outward. If the rubber belt is placed inside out, the machine might not work normally.



10.8 Cleaning Inside the Machine

1. **Clean the inside of the machine and the antistatic member with a vacuum cleaner to remove dust entering from the outside of the machine.**

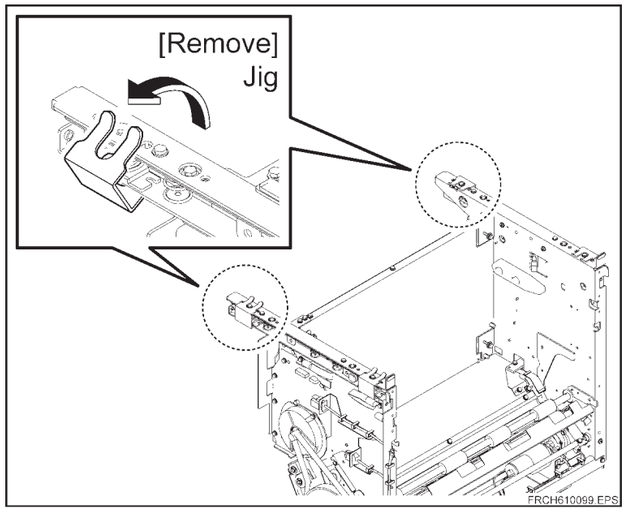


10.9 Reinstalling the Subscanning Unit

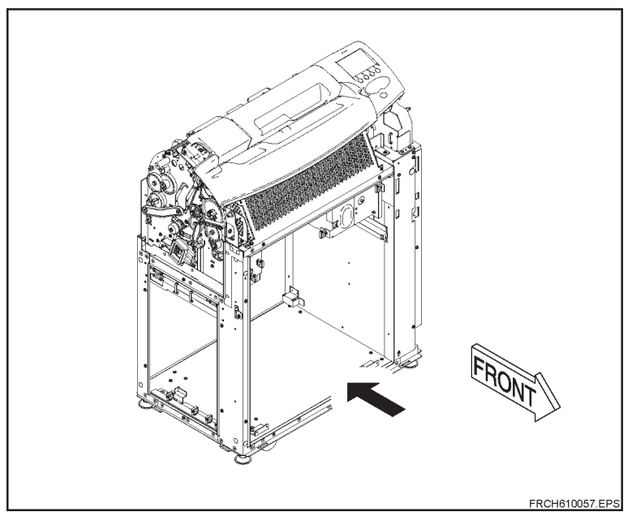
1. **Remove the two jigs as indicated in the figure.**

◆ ***NOTE*** ◆

Remove only the two jigs shown. If you remove all the jigs, you may not be able to mount the subscanning unit in the housing.



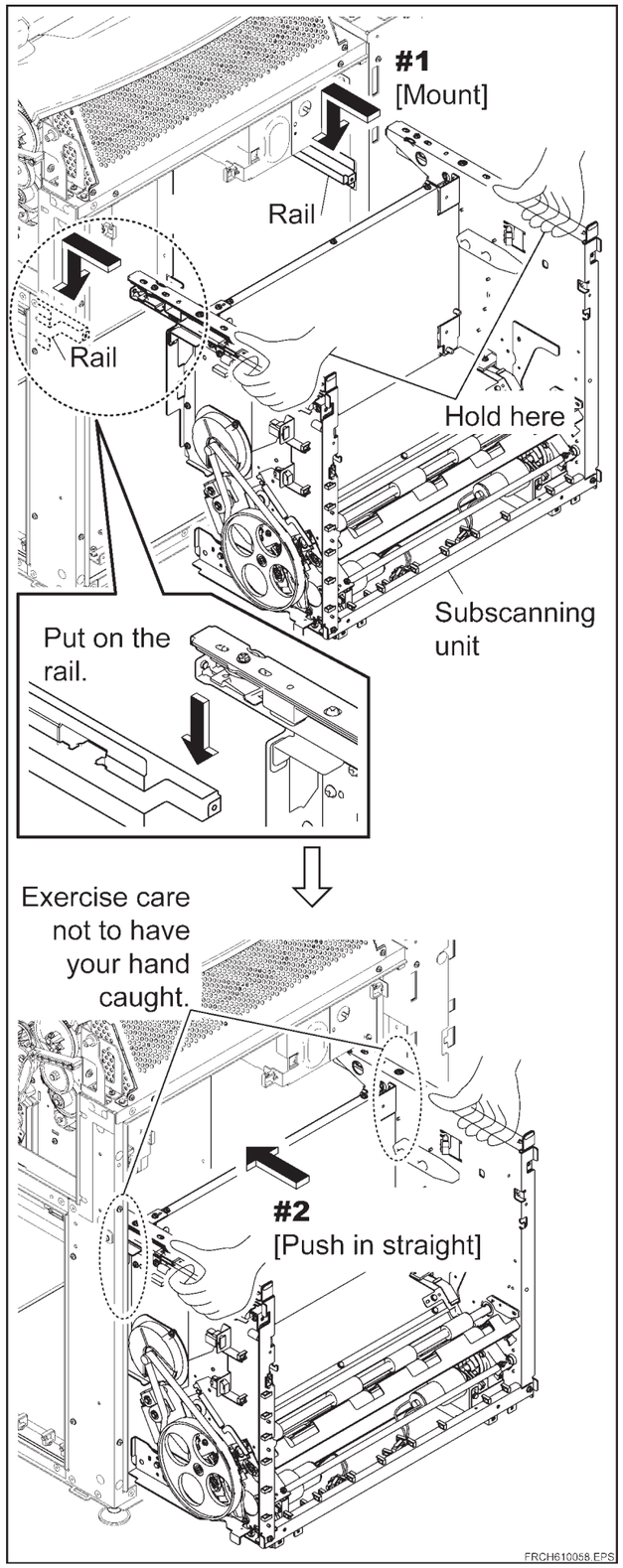
2. **Take the procedures from 3 to 6 from the direction indicated by the arrow in the figure.**



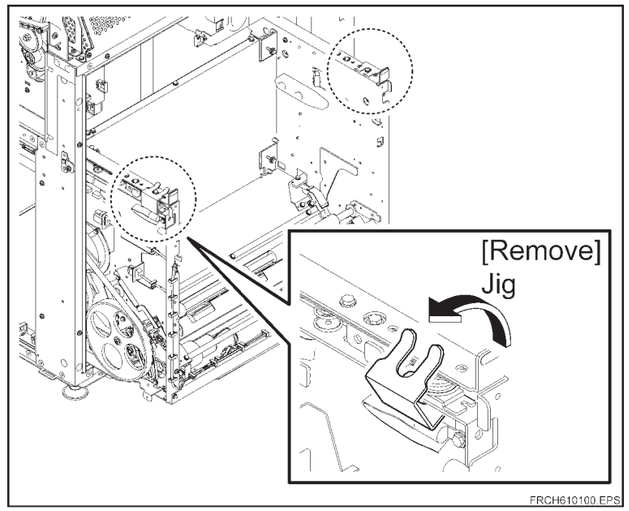
3. **Supporting the subscanning unit on the positions indicated in the figure, put the unit on the housing rails. Push the unit straight halfway.**

◆ ***NOTE*** ◆

Exercise care not to have your hand caught in the housing when pushing in the subscanning unit.



4. **Remove the jig.**

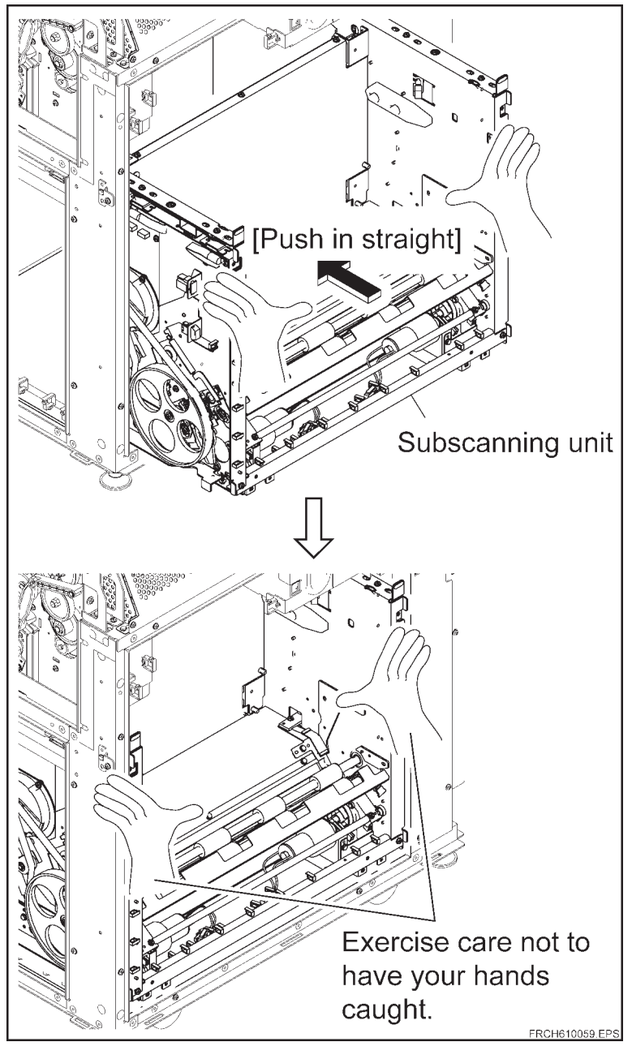


5. **Putting your hands on the positions indicated in the figure, push in the subscanning unit straight into the housing.**

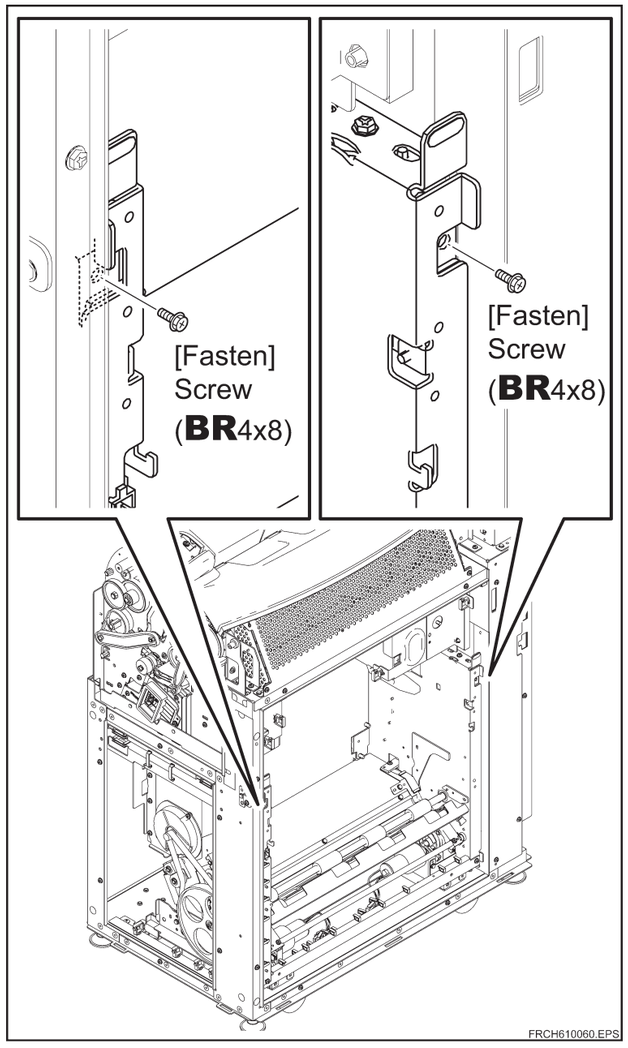
◆ ***NOTES*** ◆

- Be sure to put your hands on the specified positions to push in the subscanning unit straight. Otherwise, part of the subscanning unit might come into contact with the housing, causing damage.

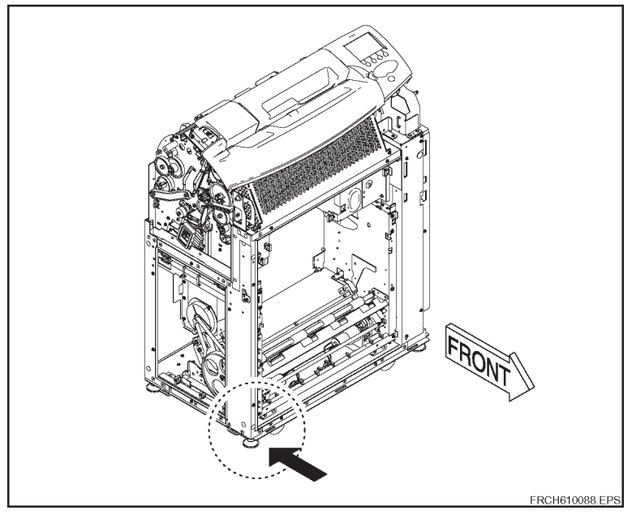
- Exercise care not to have your hands caught in the housing when pushing in the subscanning unit.



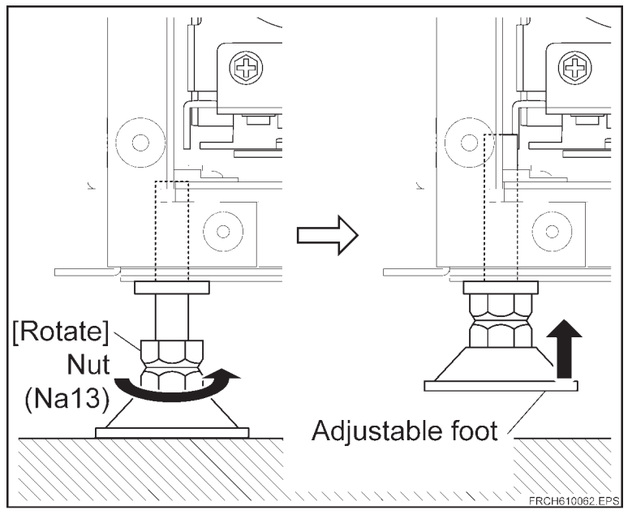
6. **Reinstall the retaining screws of the subscanning unit.**



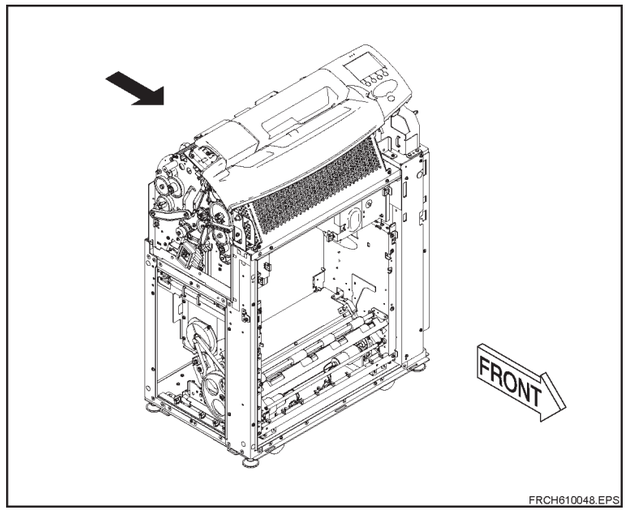
7. **Take the procedure 8 from the direction indicated by the arrow in the figure.**



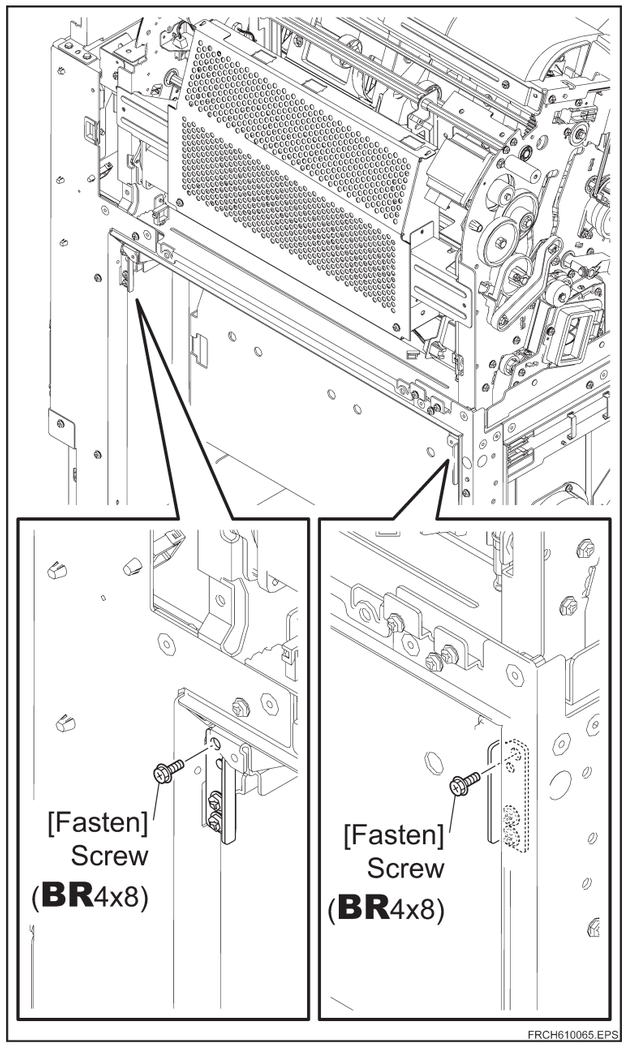
8. **Rotate the nut of the adjustable foot, and lift the adjustable foot.**



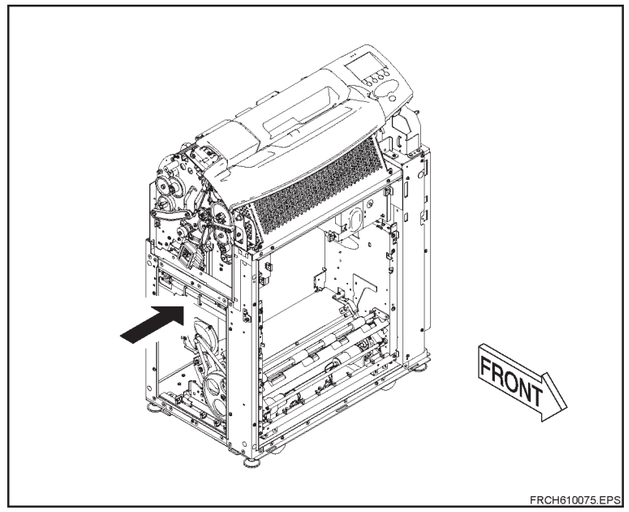
9. **Take the procedure 10 from the direction indicated by the arrow in the figure.**



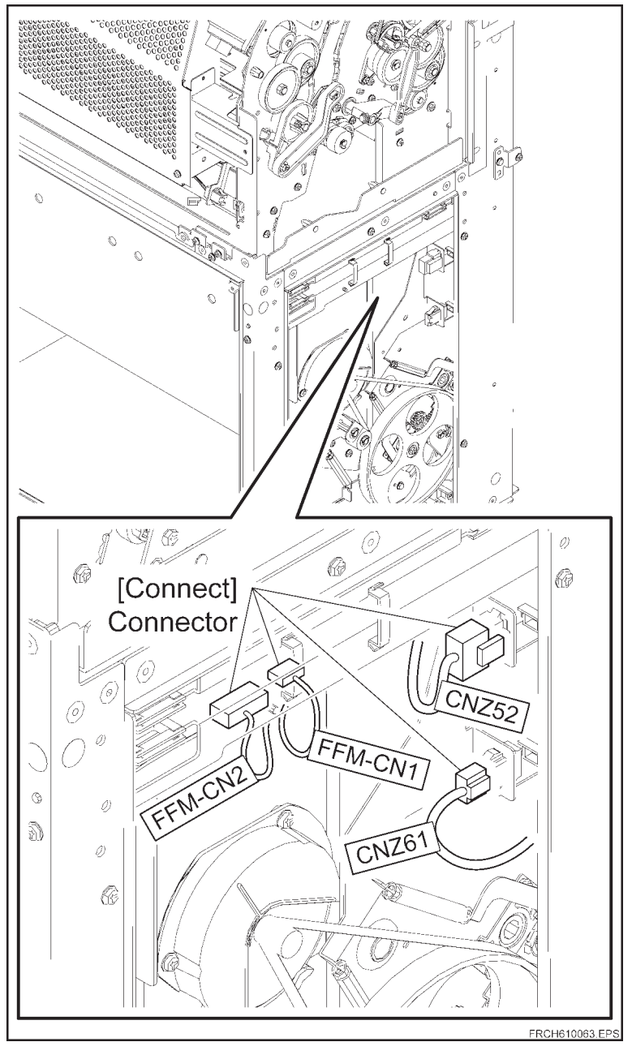
10. **Reinstall the retaining screws of the subscanning unit.**



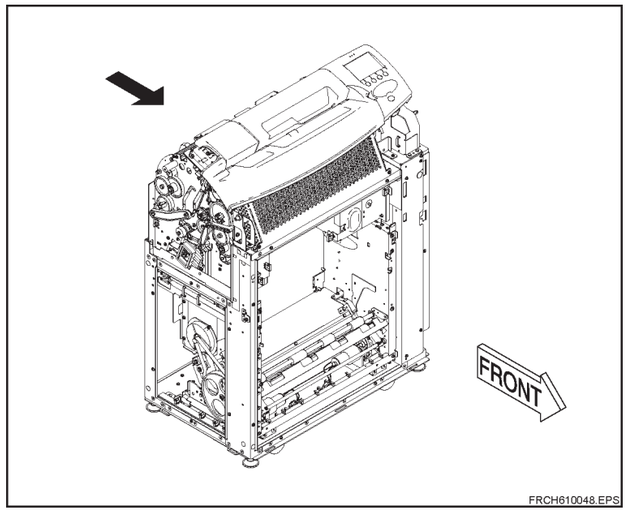
11. **Take the procedure 12 from the direction indicated by the arrow in the figure.**



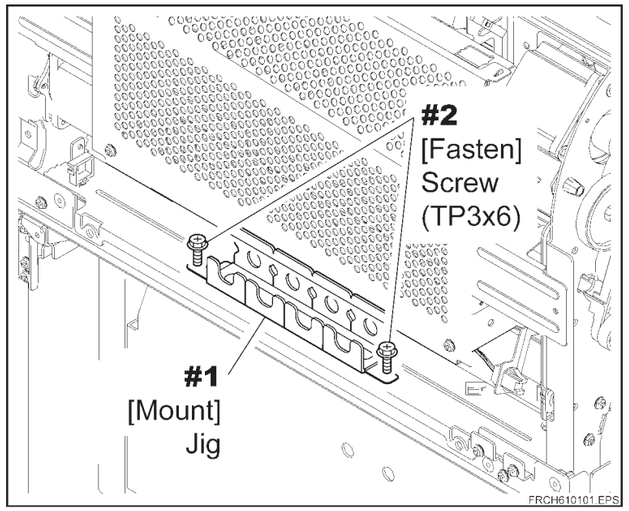
12. **Connect the connectors.**



13. **Take the procedure 14 from the direction indicated by the arrow in the figure.**



14. **Mount the jig and then tighten the screws.**



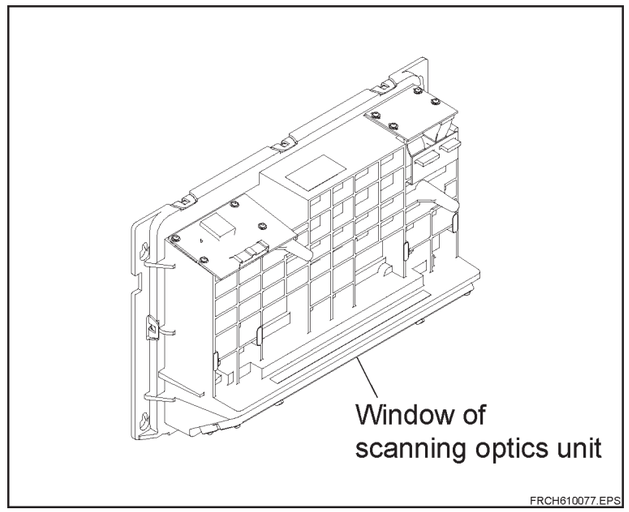
10.10 Reinstalling the Scanning Optics Unit

⚠ CAUTION

When servicing the scanning optics unit, be sure to wear an anti-static wristband to ground your body. If your body is not grounded, static electricity built on your body may cause damage to electronic parts on the board.

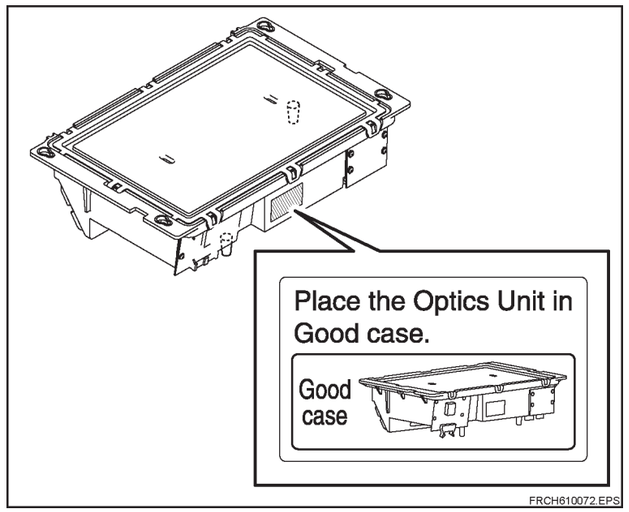
⚠ CAUTION

Never touch the window of the scanning optics unit. If fingerprints or the like are left on the window, the scanning optics unit must be replaced.



◆ NOTE ◆

Place the scanning optics unit in the orientation as shown in the figure, according to the label indicating how to place the scanning optics unit.



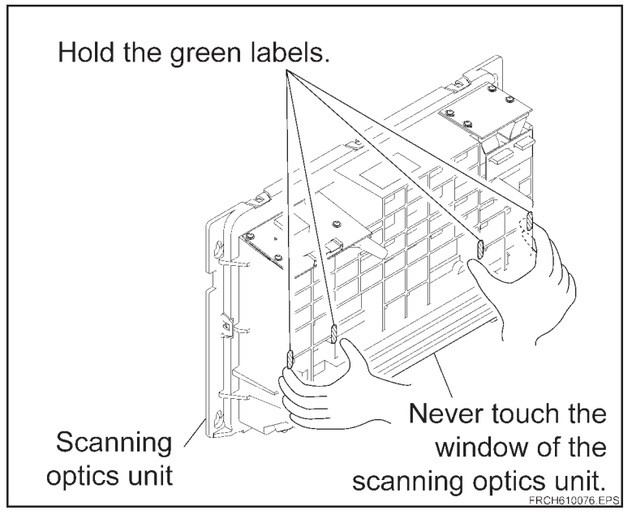
◆ INSTRUCTION ◆

Do not remove the top cover of the scanning optics unit.

1. **Hold the scanning optics unit on parts with the attached green labels.**

⚠ CAUTION

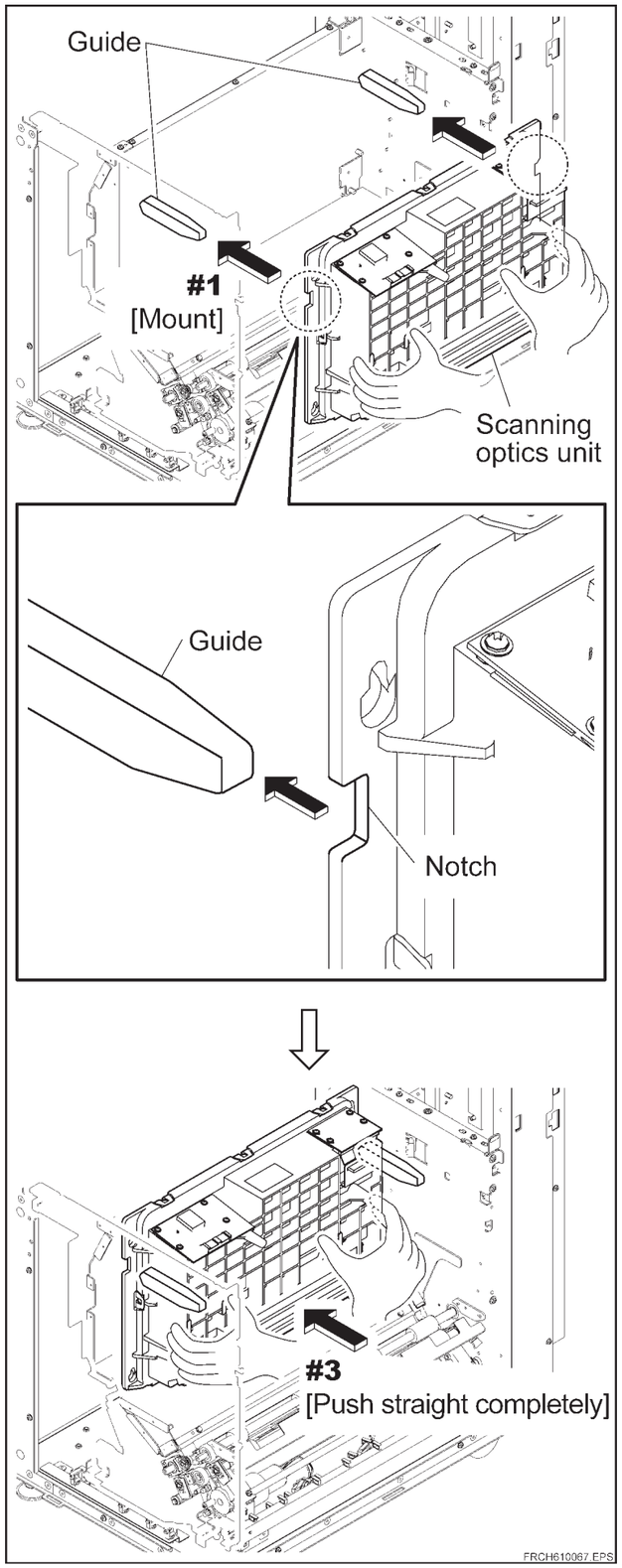
Never touch the window of the scanning optics unit. If fingerprints or the like are left on the window, the scanning optics unit must be replaced.



2. **Mount the notches on both sides of the scanning optics unit on the guides. Push straight completely while exercising care not to tilt the scanning optics unit.**

◆ *NOTE* ◆

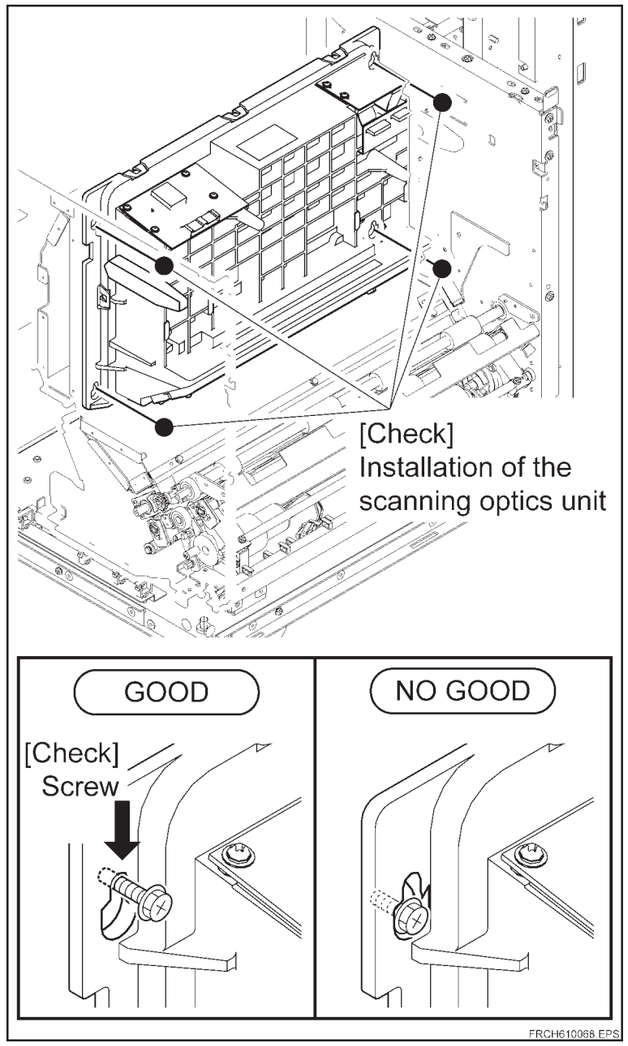
Push in the scanning optics unit straight along the guides not to permit it to tilt. If the unit is tilted, it may drop from the guides and result in damage of peripheral components or sensors.



3. **Be sure to check that the scanning optics unit is correctly placed on the retaining screws.**

◆ ***NOTE*** ◆

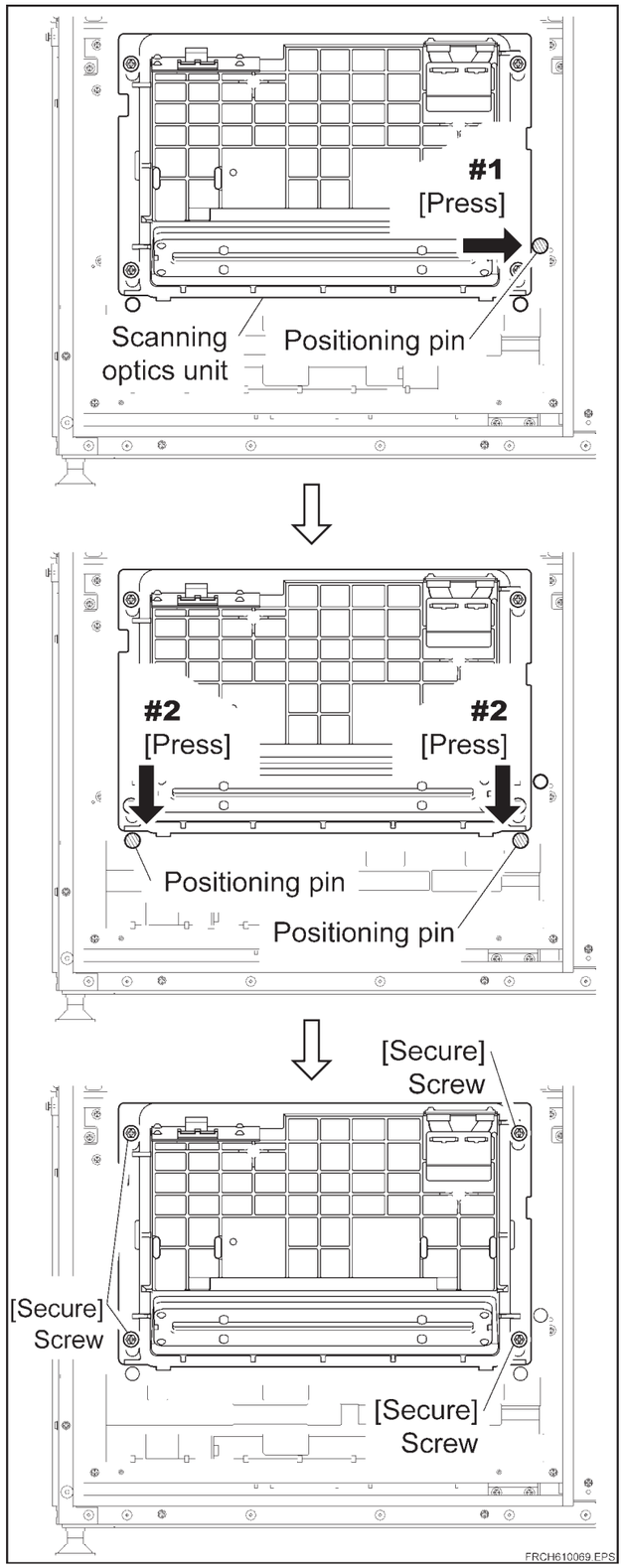
Make sure that the scanning optics unit is correctly placed on the retaining screws. If the screw head is not in the correct position in the hole of the scanning optics unit, the unit cannot be installed correctly.
If the screw head is not in the correct position, reinstall the unit again and recheck.



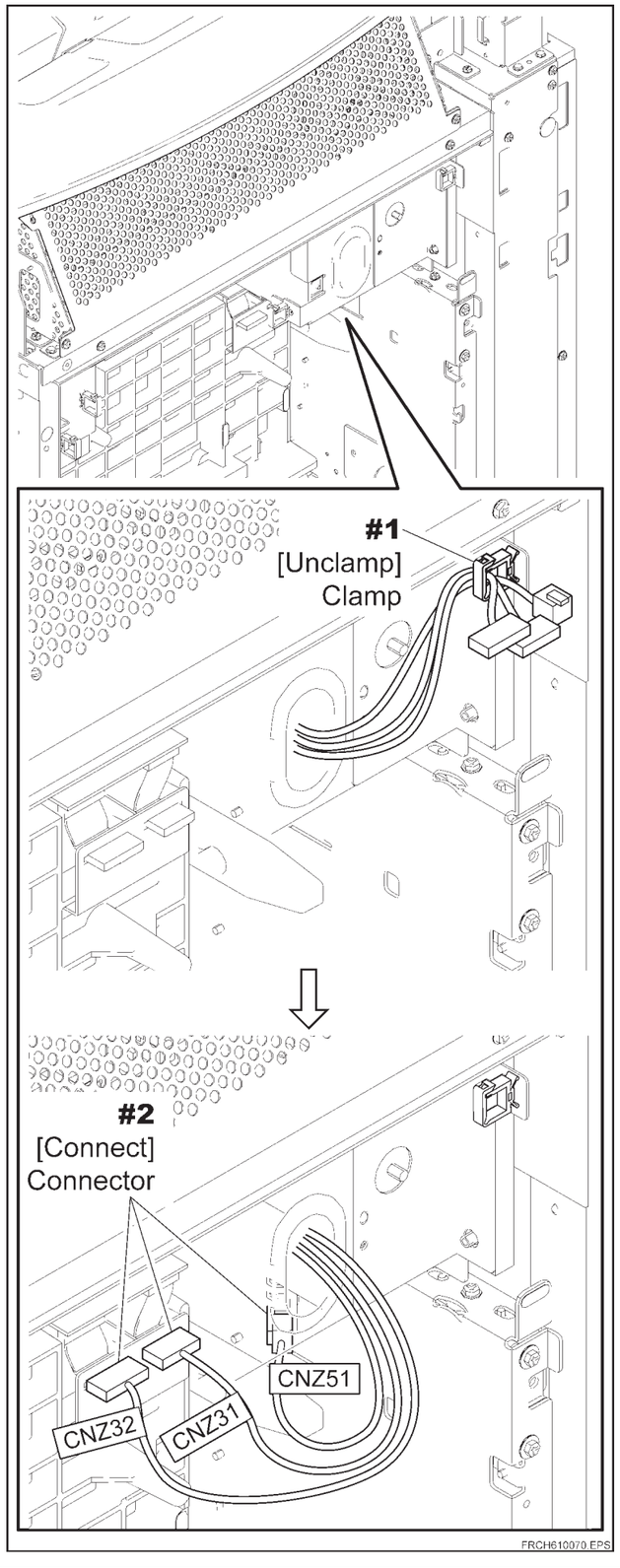
4. **Secure the retaining screws while pushing the scanning optics unit against the positioning pin.**

◆ ***NOTE*** ◆

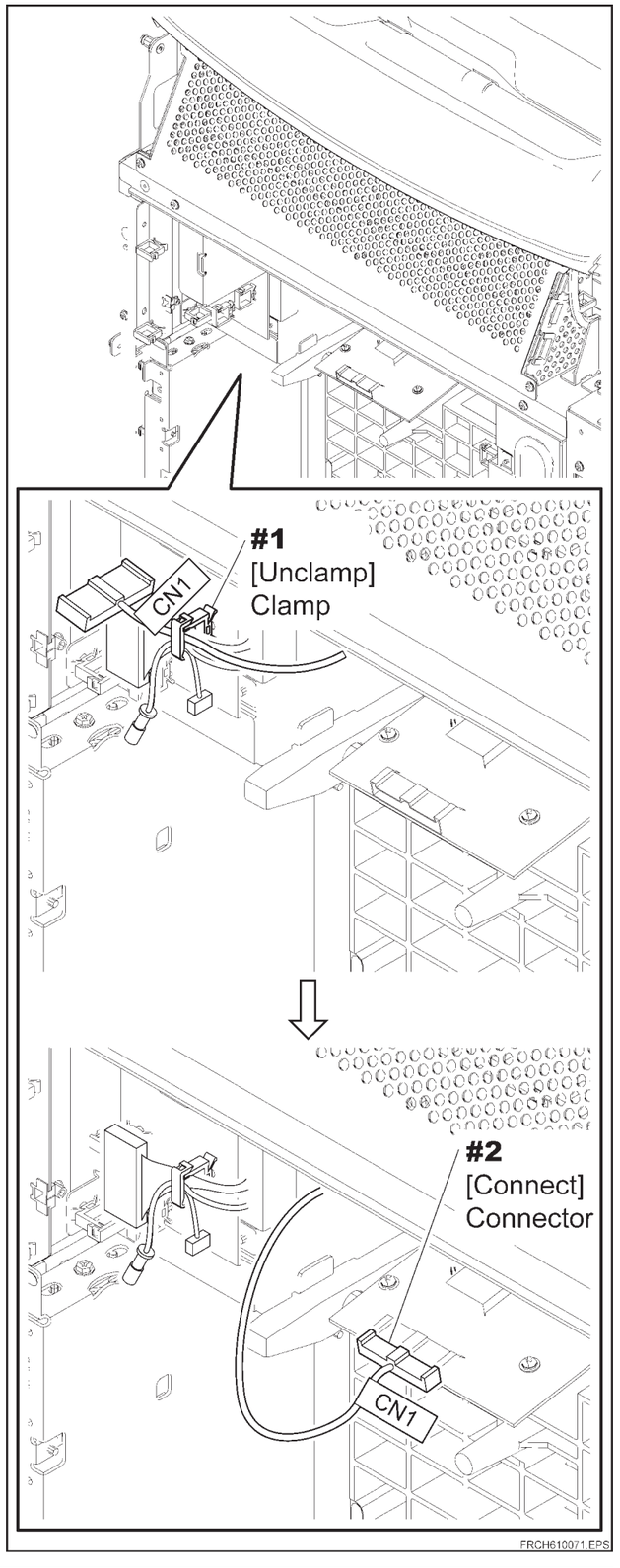
Be sure to retain the retaining screw while pushing the scanning optics unit against the positioning pin. By pushing the scanning optics unit tightly against the positioning pin, the unit is located in the correct position.



5. **Unclamp the clamp and connect the connectors.**



6. **Unclamp the clamp and connect the connector.**



11. Light-Collecting Guide

11.1 Cleaning and Reinstalling the Light-Collecting Guide

⚠ CAUTIONS

- ***Never touch the light-receiving face of the light-collecting unit even when you are wearing gloves.***
- ***Do not wipe the light-collecting guide with a dry cloth. If so, the lightcollecting guide may be scratched or otherwise damaged.***
- ***If the lens cleaning paper becomes soiled, replace it with a new one.***
- ***Wipe the light-collecting surface of the light-collecting guide until the lens cleaning paper becomes no longer soiled.***
- ***Wipe the light-collecting guide assembly in one direction at a constant speed.***
- ***Do not wipe the photomultiplier attachment face.***

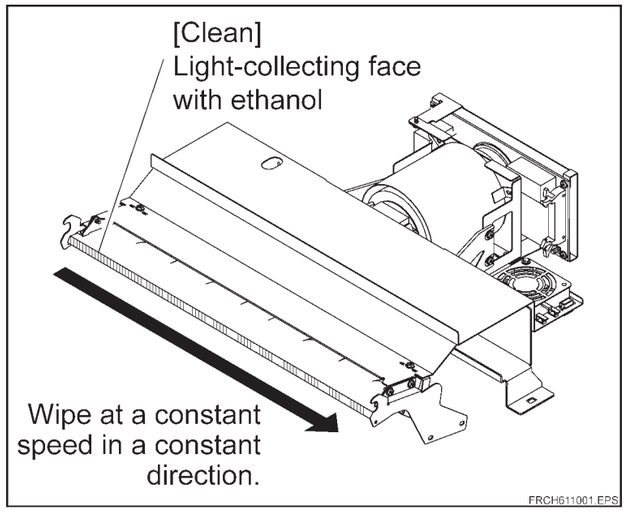
◆ INSTRUCTION◆

When servicing the light-collecting unit, wear gloves.

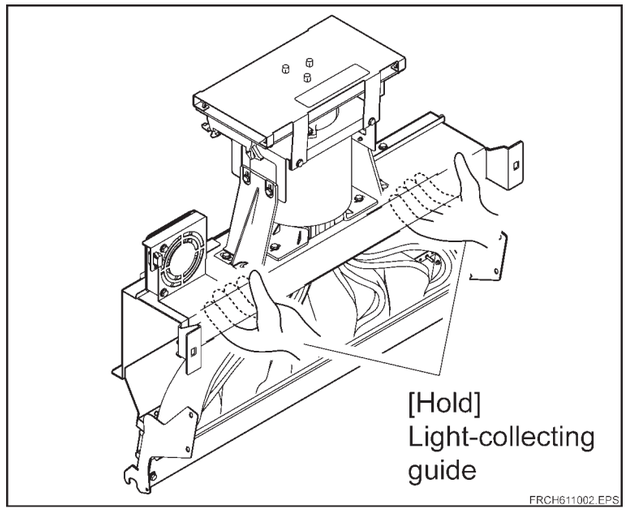
1. Clean the light-collecting face of the light-collecting guide by use of ethanol.

◇ *REFERENCE* ◇

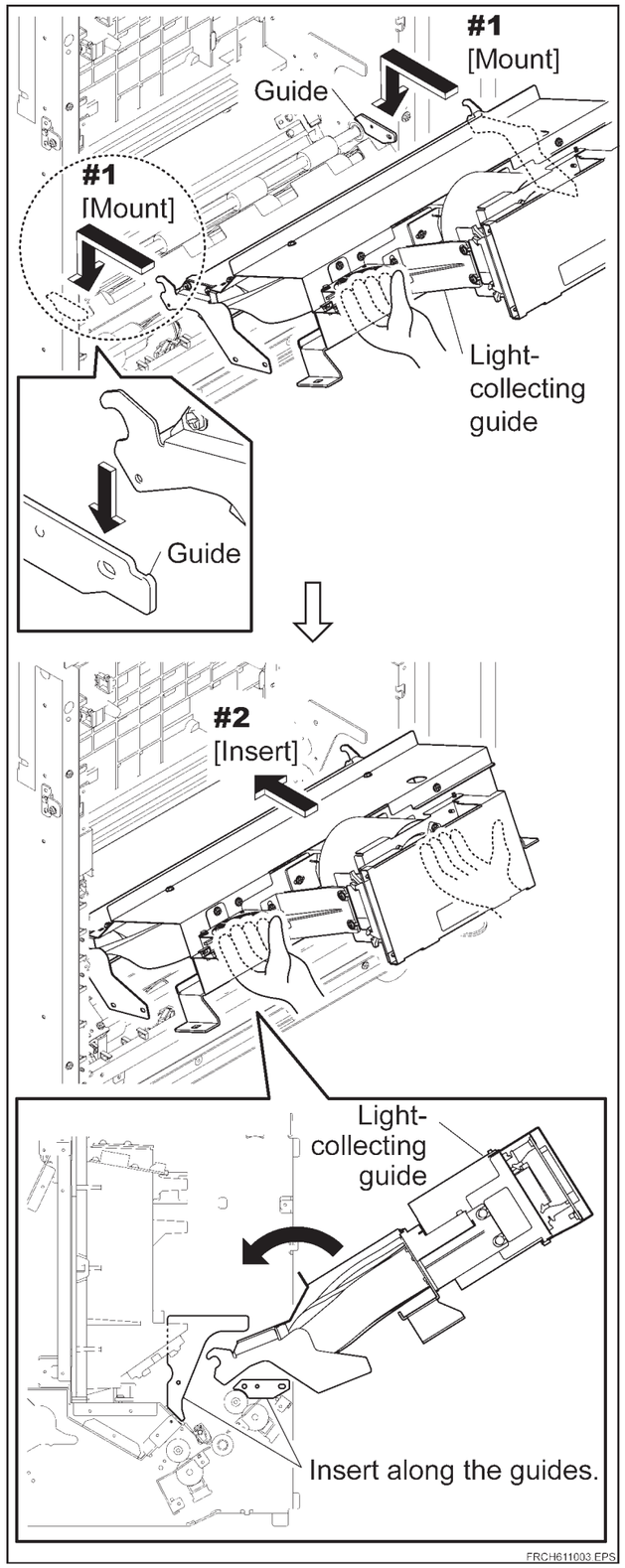
To clean the light-collecting guide, two sheets of lens cleaning paper should be folded in four and then moistened with ethanol.



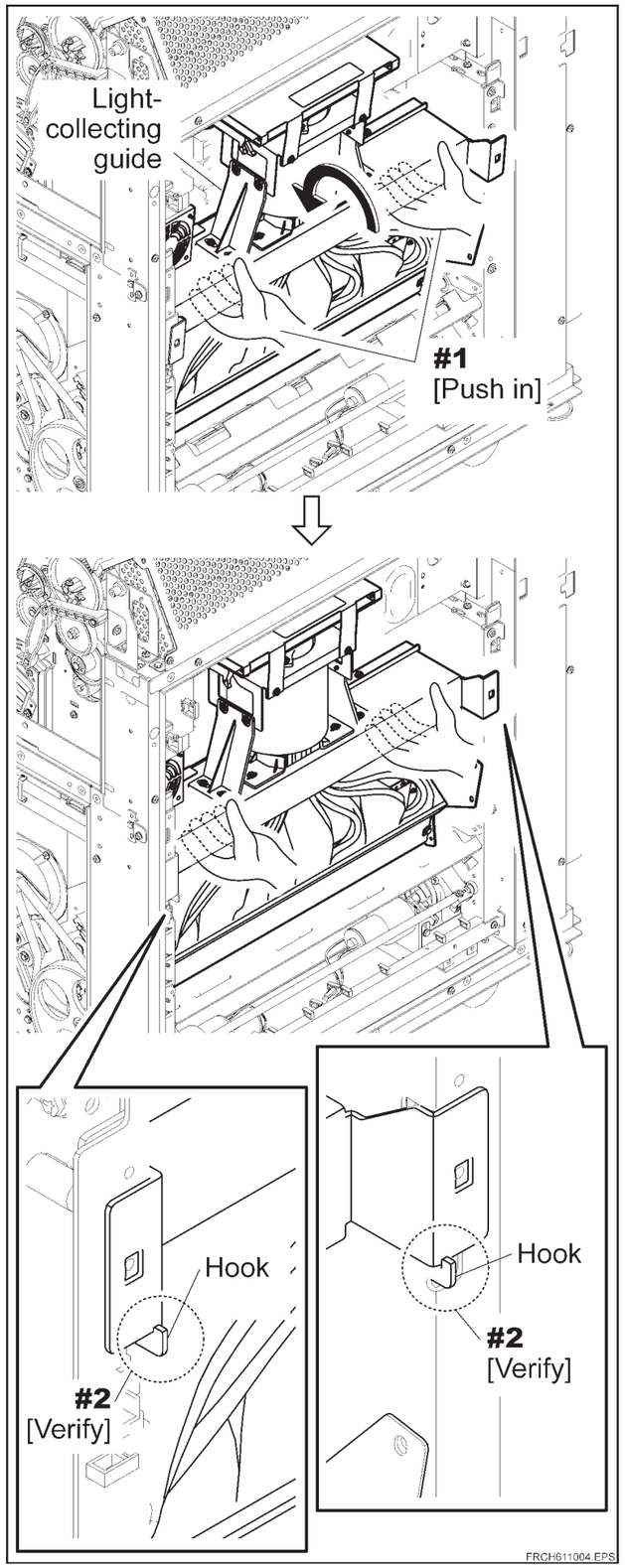
2. Hold the light collecting guide as indicated in the figure.



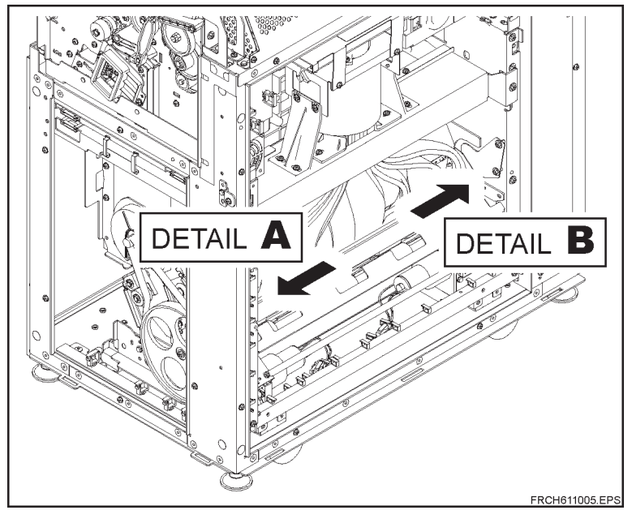
3. **Mount the light-collecting guide on the guides of the subscanning unit. Insert the light-collecting guide along the guides into the subscanning unit.**



4. **Push in the light-collecting guide while slightly raising it. Check to make sure that the guide is correctly engaged with the hooks of the subscanning unit side plate.**



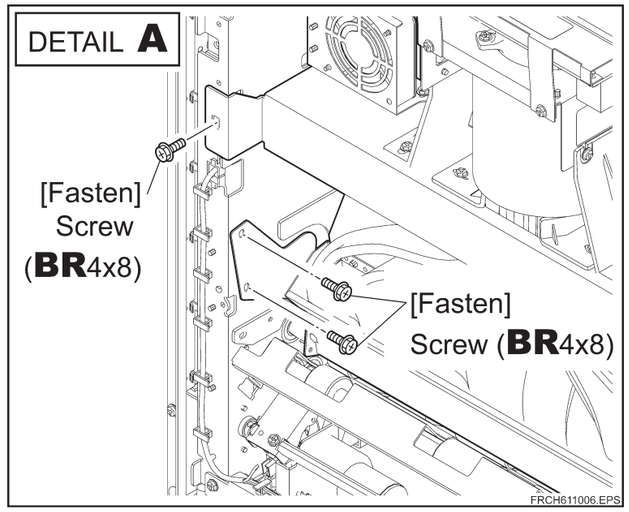
5. **Take the procedures 6 and 7 from the direction indicated by the arrow in the figure.**



6. **Reinstall the retaining screws of the light-collecting guide from the direction instructed in DETAIL A.**

◆ ***NOTE*** ◆

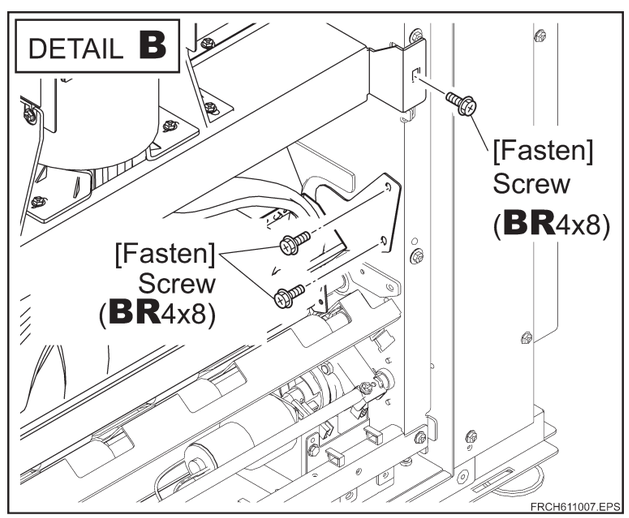
Exercise care not to damage the acrylic part of the light-collecting guide with a screwdriver when reinstalling the screws.



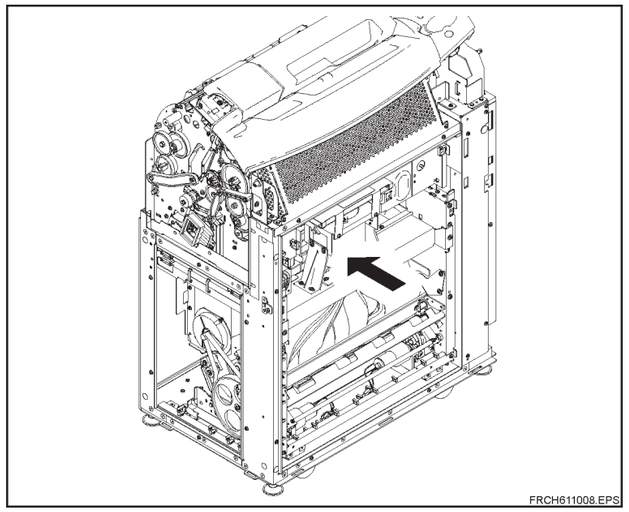
7. **Reinstall the retaining screws of the light-collecting guide from the direction instructed in DETAIL B.**

◆ ***NOTE*** ◆

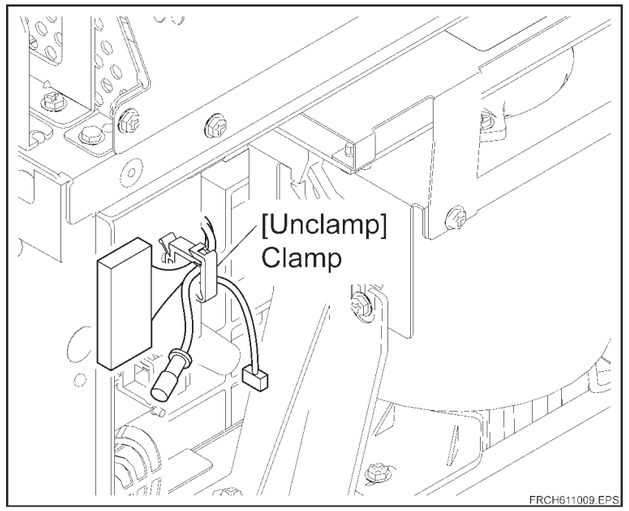
Exercise care not to damage the acrylic part of the light-collecting guide with a screwdriver when reinstalling the screws.



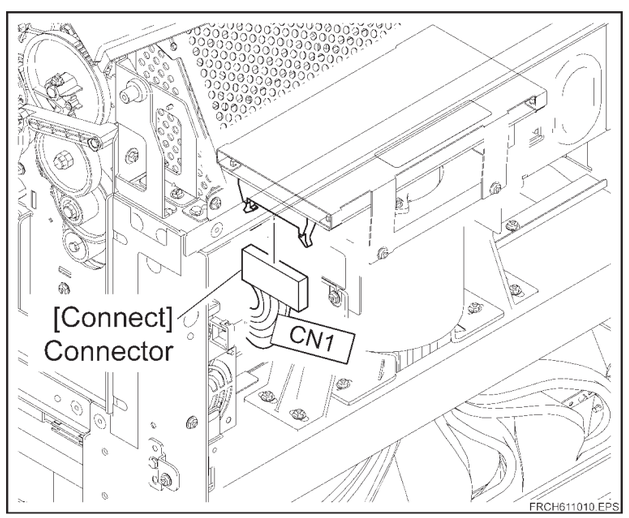
8. **Take the procedures from 9 to 12 from the direction indicated by the arrow in the figure.**



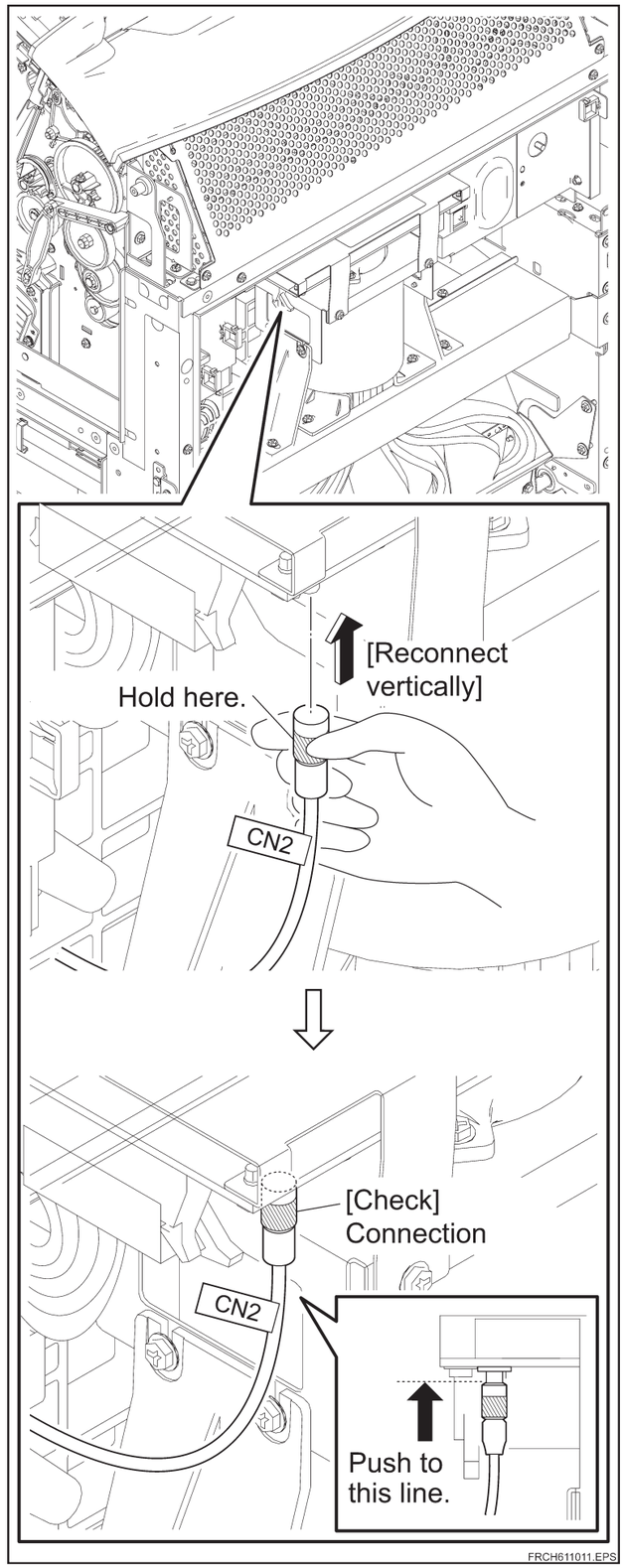
9. **Unclamp the clamps.**



10. **Connect the connector.**



11. **Reconnect the connector vertically, holding the shaded portion in the figure. Check that the connector is fully inserted into its position as shown.**



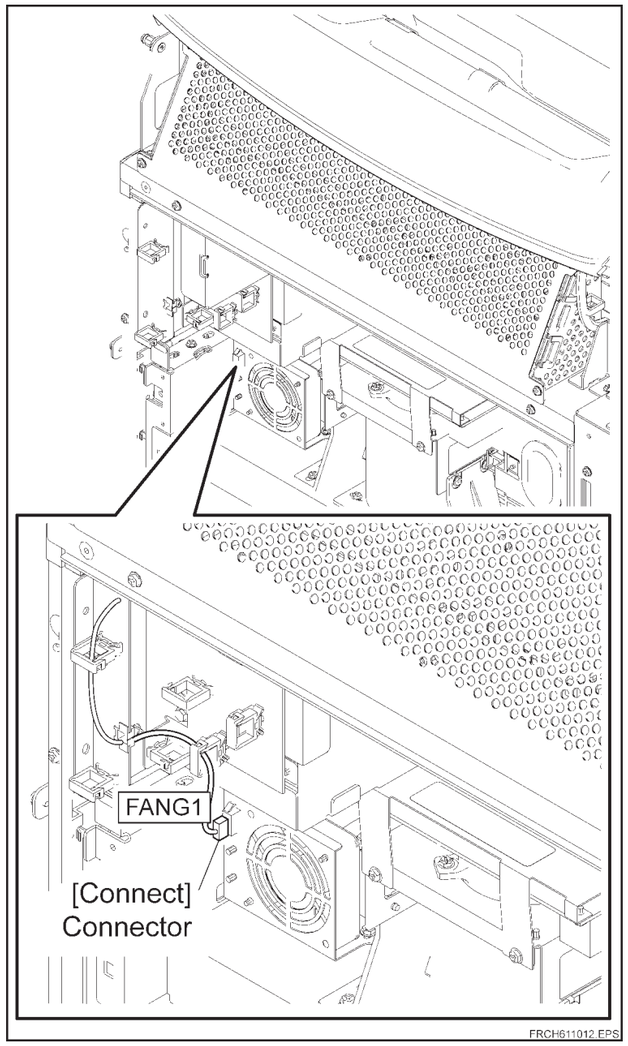
⚠ CAUTION

Be sure to check that the connector is fully inserted into its position as shown. If the connector is not properly connected, an error occurs during image reading.

◆ NOTES ◆

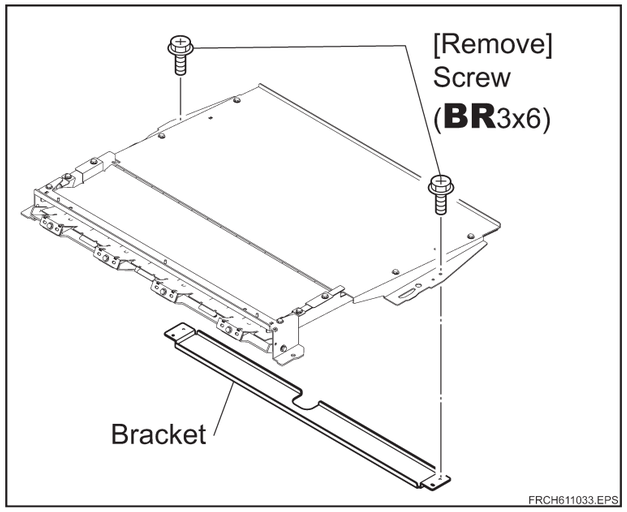
- *Be sure to hold the specified portion to reconnect the connector. Otherwise, the cable may get damaged.*
- *Connect the connector vertically to the board. If it is connected in a rotated state, the connector might get damaged.*
- *As the working space is small, exercise care not to get injured by peripheral components when connecting the connector.*

12. **Connect the connector.**

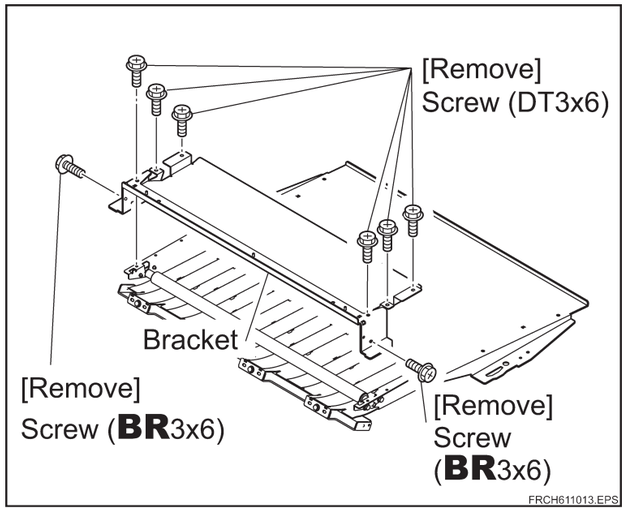


11.2 Cleaning the Post-Reading Conveyor Guide Assembly

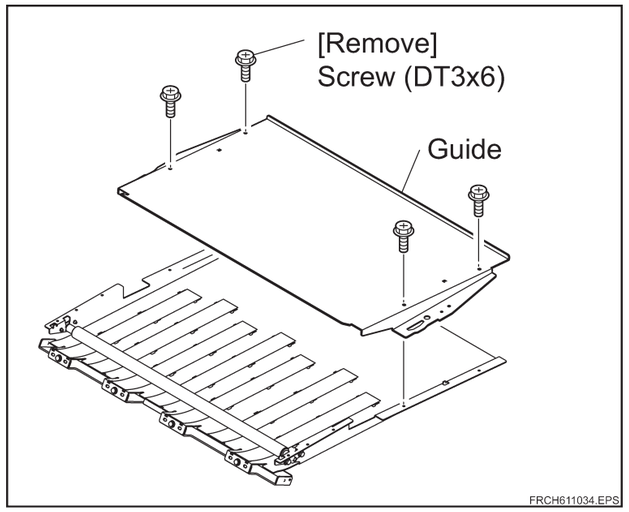
1. **Remove the bracket.**



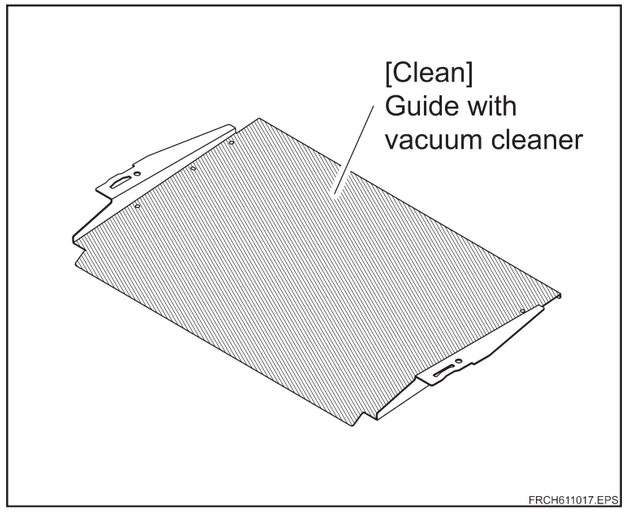
2. **Remove the bracket.**



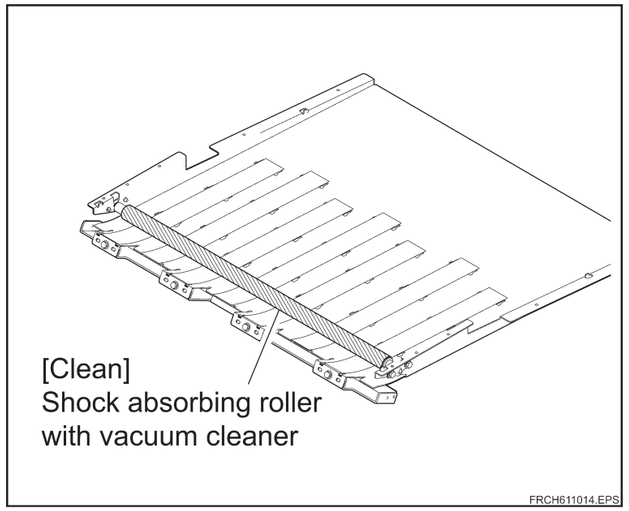
3. **Remove the guide.**



4. **Clean the guide with a vacuum cleaner.**



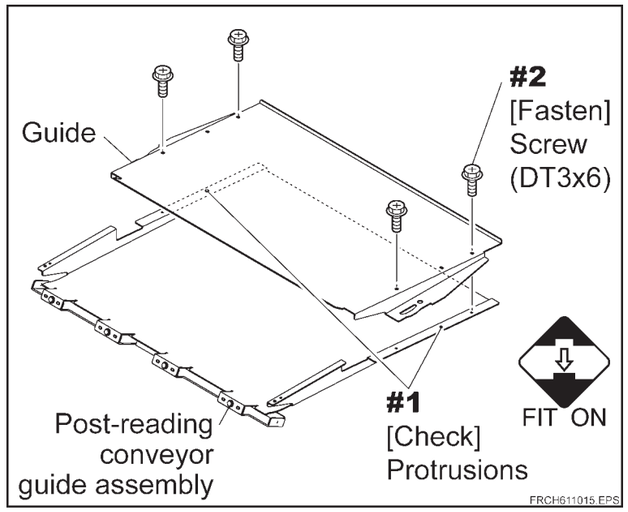
5. **Clean the shock absorbing roller with a vacuum cleaner.**



6. **Check to make sure that the guide is correctly fitted onto the protrusions, before reinstalling the screws.**

◆ *NOTES* ◆

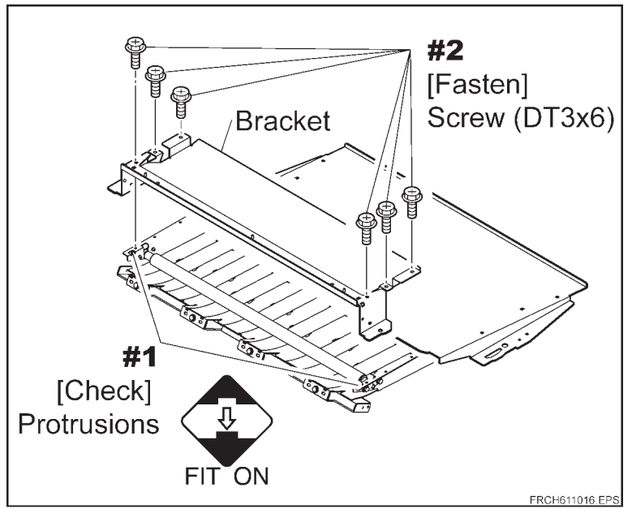
- *Exercise care in the orientation of installing the guide.*
- *Be sure to check that the guide is correctly fitted on to the protrusions of the post-reading conveyor guide assembly, before reinstalling the screws.*



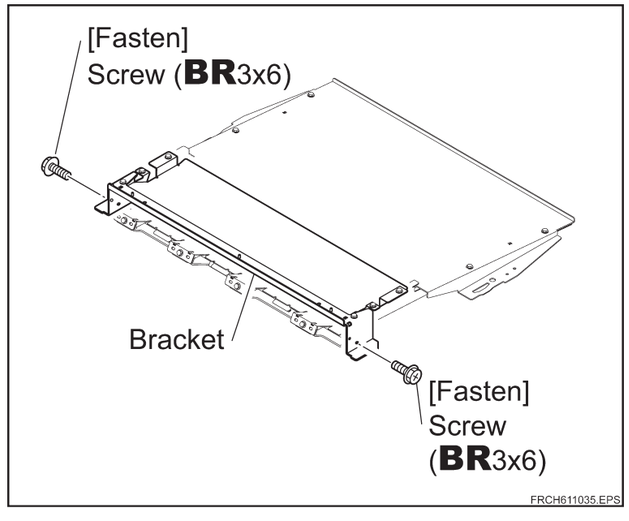
7. **Check to make sure that the bracket is correctly fitted onto the protrusions, before reinstalling the screws.**

◆ *NOTE* ◆

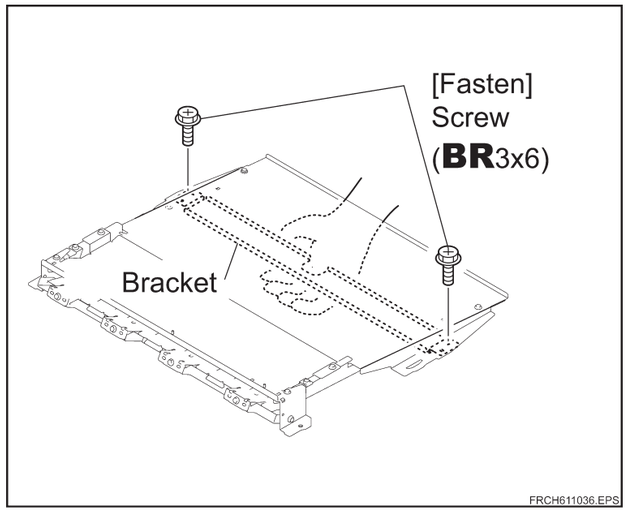
Be sure to check that the bracket is correctly fitted onto the protrusions of the post-reading conveyor guide assembly, before reinstalling the screws.



8. **Install the screws to secure the bracket.**

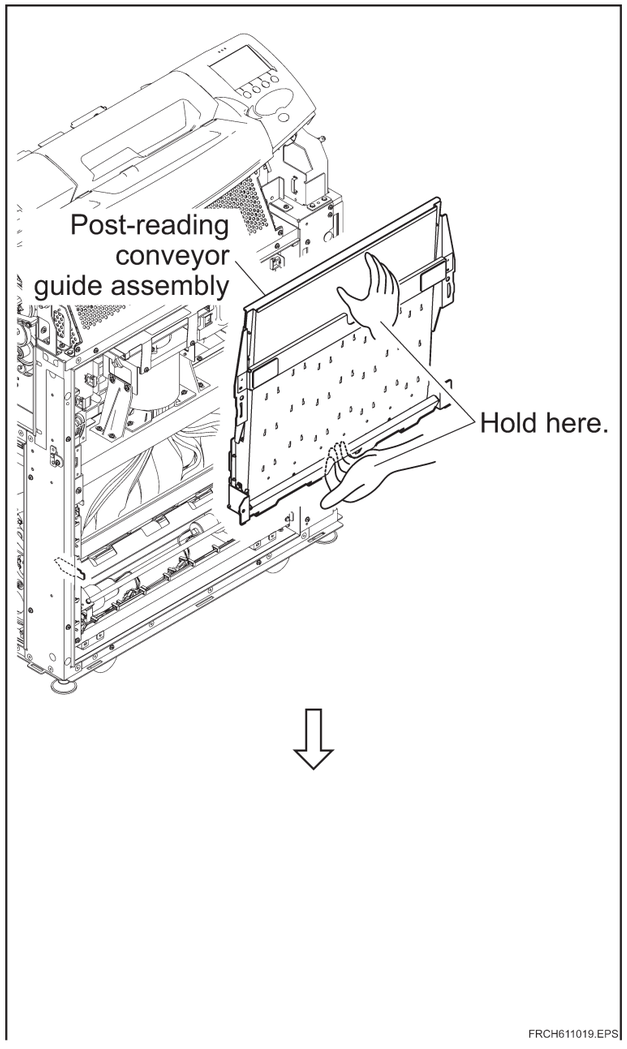


9. **Install the screws while pressing down on the bracket.**



11.3 Reinstalling the Post-Reading Conveyor Guide Assembly

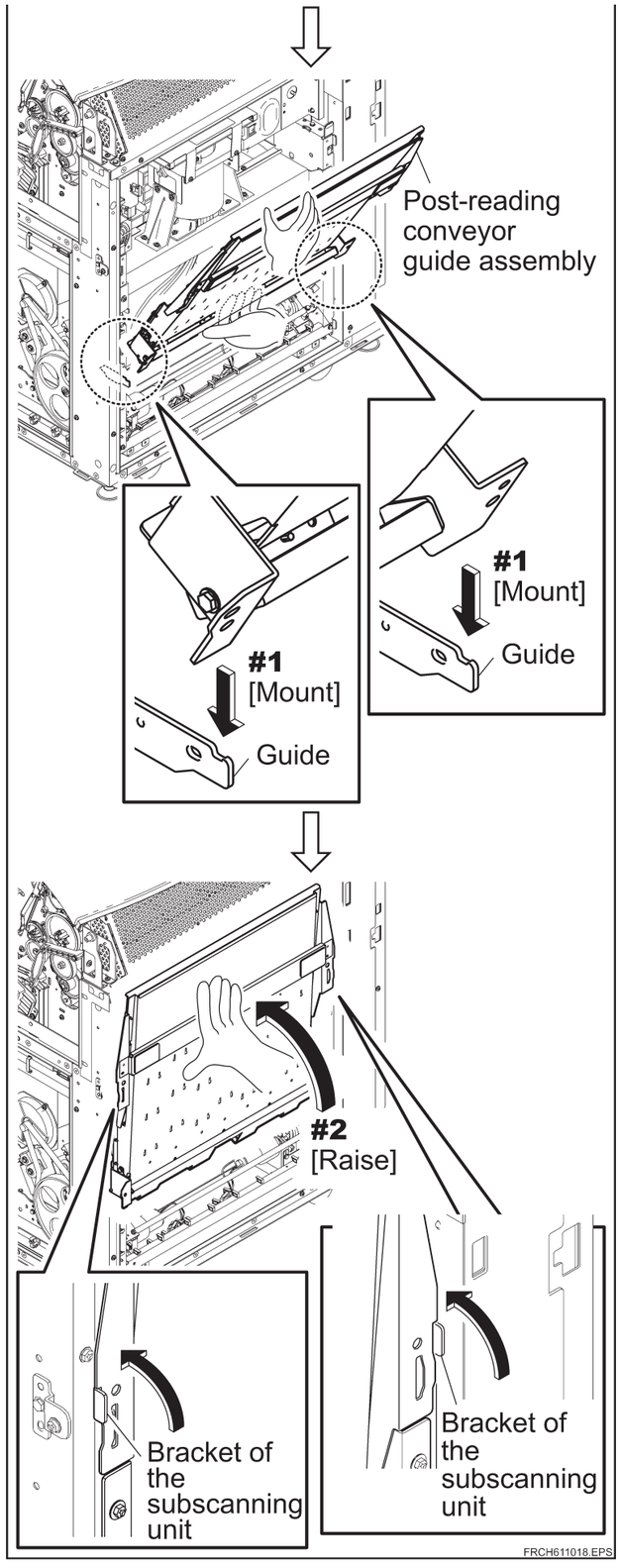
1. **Hold the post-reading conveyor guide assembly as indicated in the figure, and mount it on the guide of the subscanning unit. Raise the post-reading conveyor guide assembly until it hooks on the bracket of the subscanning unit.**



FRCH611019.EPS

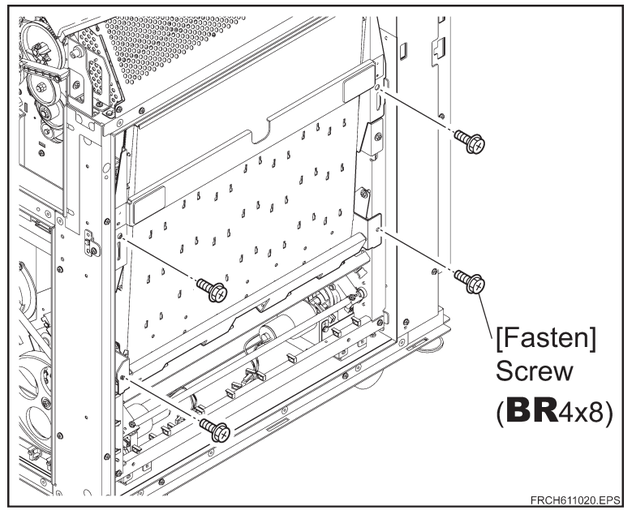
◆ NOTES ◆

- *Do not strongly grasp the upper part of the post-reading conveyor guide assembly. The guide might deform, causing an IP jam.*
- *Mount the post-reading conveyor guide assembly on the guide of the subscanning unit, before raising the post-reading conveyor guide assembly.*



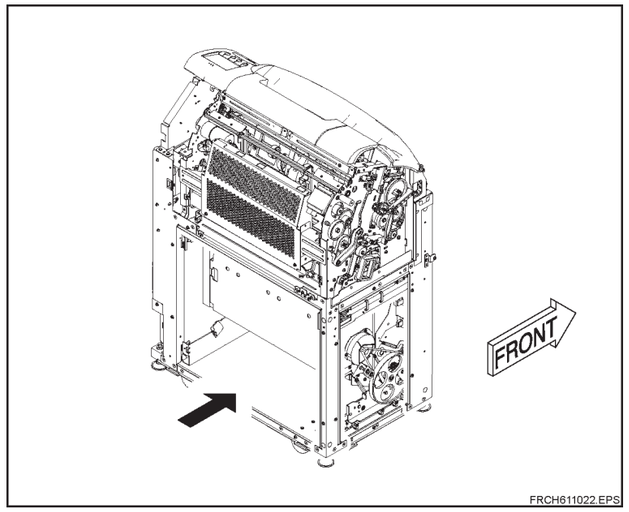
FRCH611018.EPS

2. **Reinstall the retaining screws of the post-reading conveyor guide assembly.**



11.4 Reinstalling the Side-Positioning Conveyor Unit

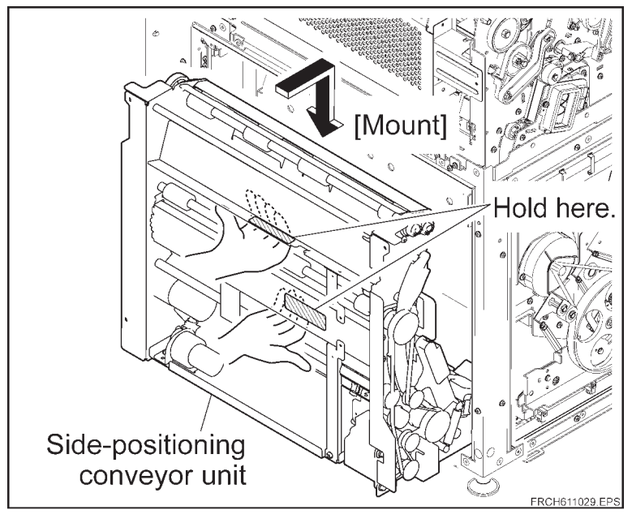
1. **Take the procedures from 2 to 3 from the direction indicated by the arrow in the figure.**



2. **Hold the side-positioning conveyor unit as indicated in the figure, and mount it on the housing.**

◆ ***NOTE*** ◆

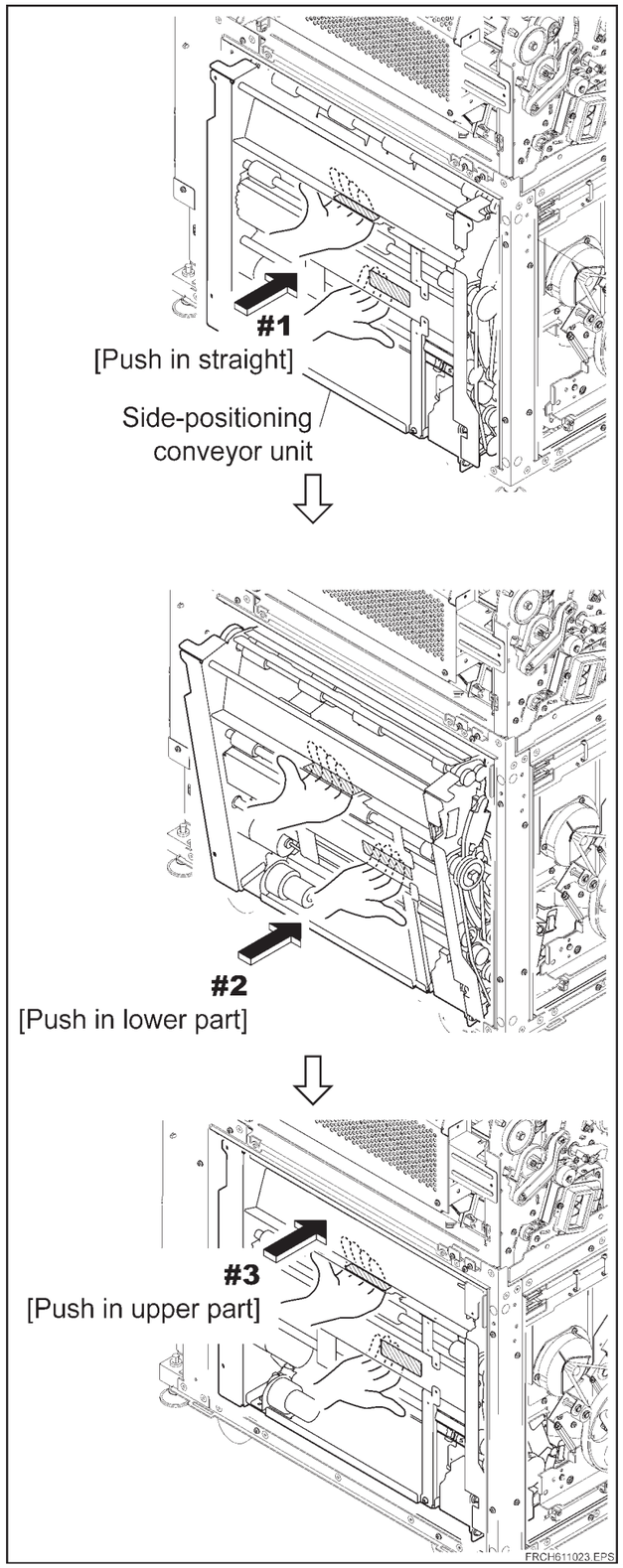
Always support the unit on the positions indicated in the figure for this operation. If the unit is pulled out with other positions supported, components of the side-positioning conveyor unit might get damaged.



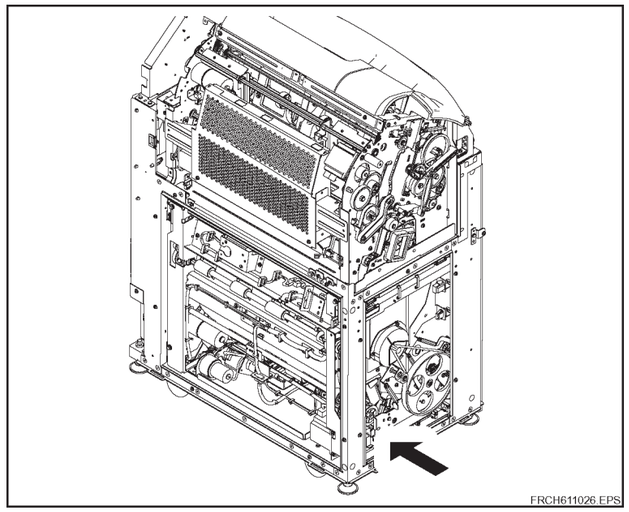
3. **Push in the side-positioning conveyor unit straight halfway into the housing. Push in the lower part of the side-positioning conveyor unit horizontally into the housing, and then push in the upper part.**

◆ ***NOTE*** ◆

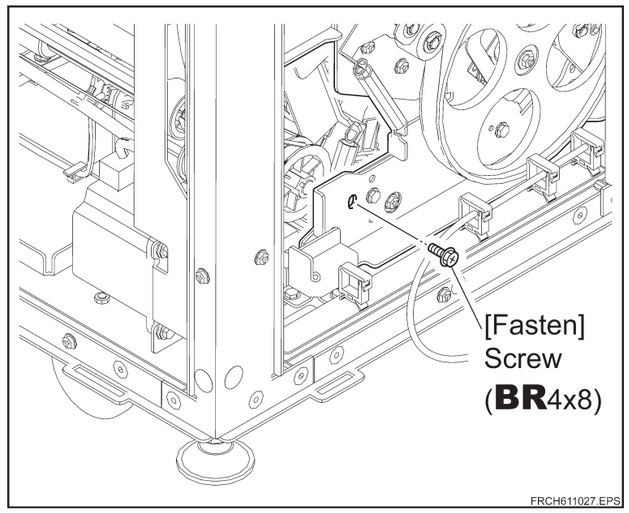
Always support the unit on the positions indicated in the figure for this operation. If the unit is pulled out with other positions supported, components of the side-positioning conveyor unit might get damaged.



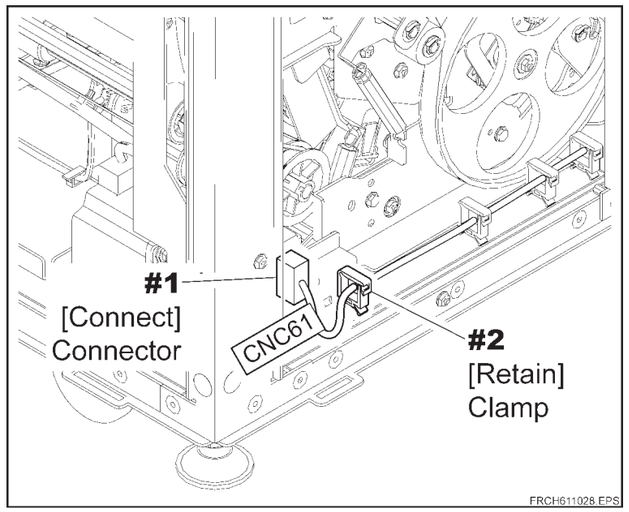
4. **Take the procedures 5 and 6 from the direction indicated by the arrow in the figure.**



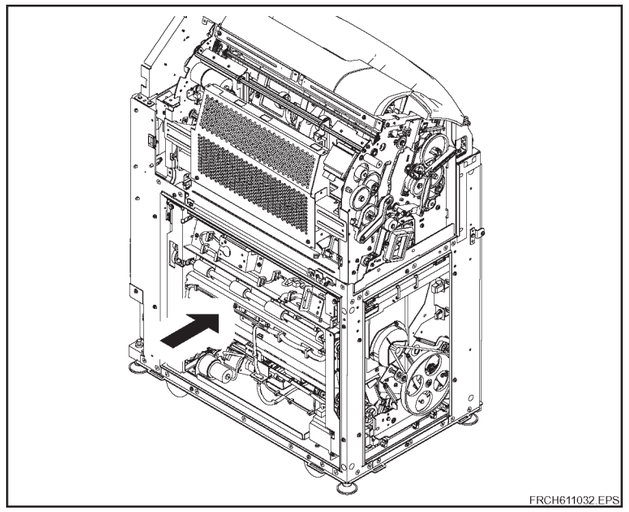
5. **Reinstall the retaining screw of the side-positioning conveyor unit.**



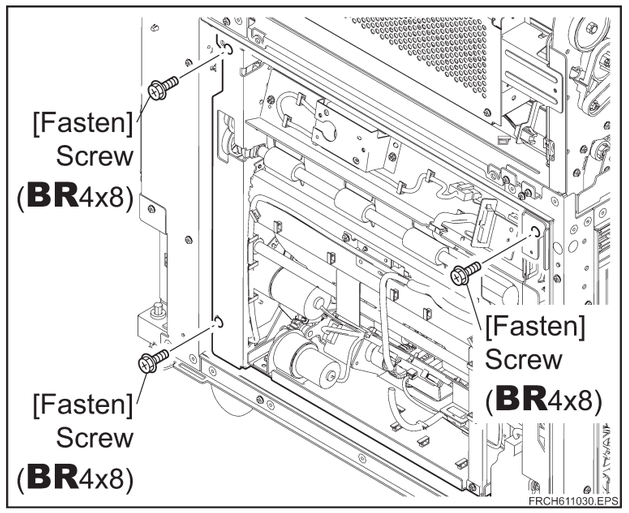
6. **Connect the connector, and retain the cable with the clamp.**



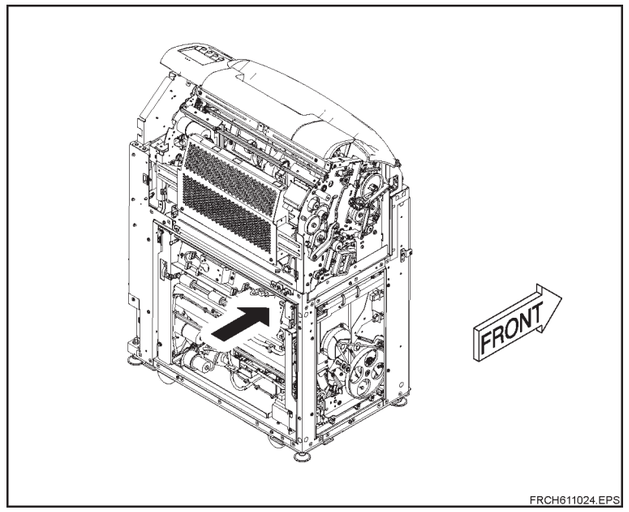
7. **Take the procedure 8 from the direction indicated by the arrow in the figure.**



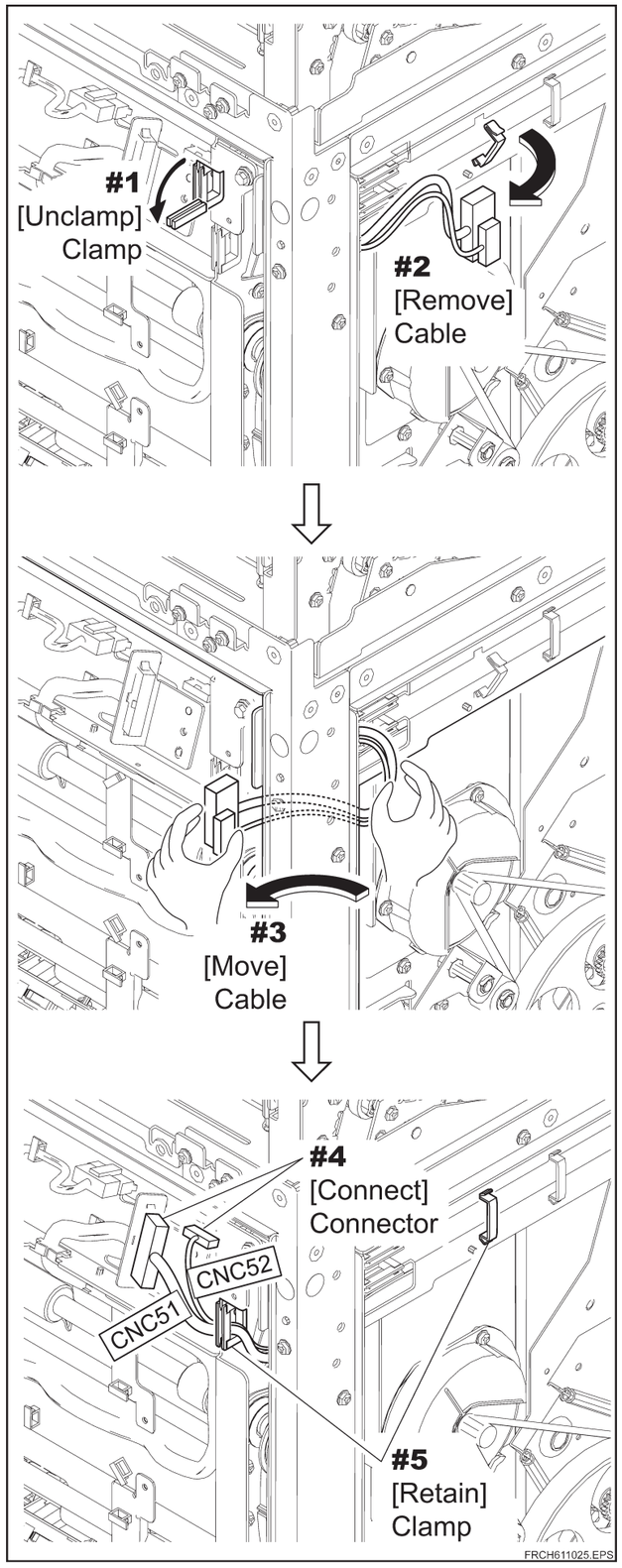
8. **Reinstall the retaining screws of the side-positioning conveyor unit.**



9. **Take the procedure 10 from the direction indicated by the arrow in the figure.**

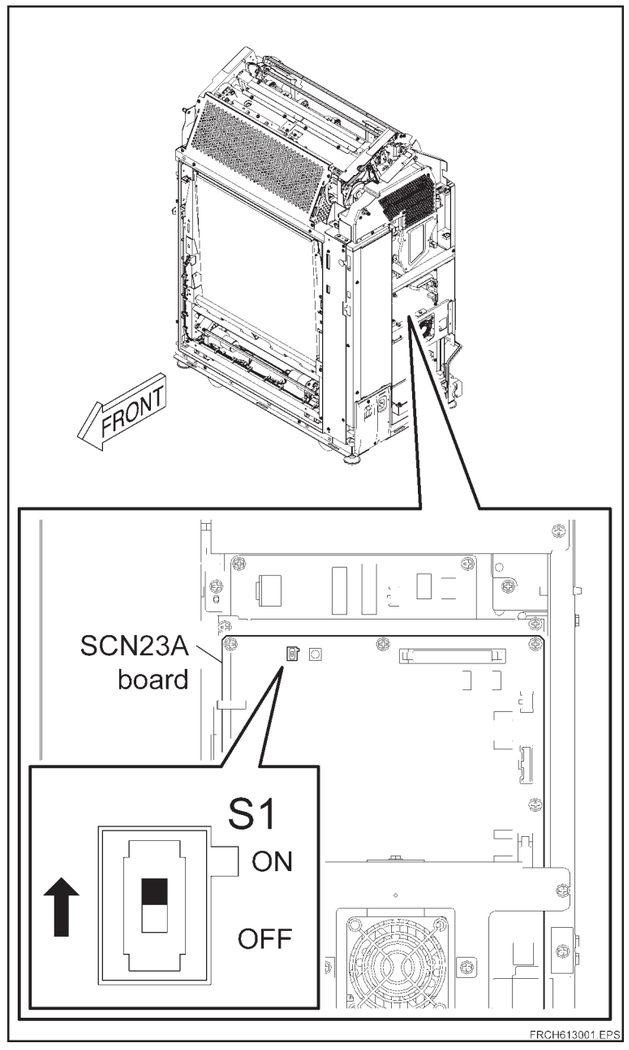


10. **Disconnect the cable from the clamp, and move it toward the rear of the housing. Connect the connector, and retain the cable with the clamps.**



12. Turning ON the High-Voltage Switch

1. **Turn ON the high-voltage switch (S1) on the SCN23A board.**

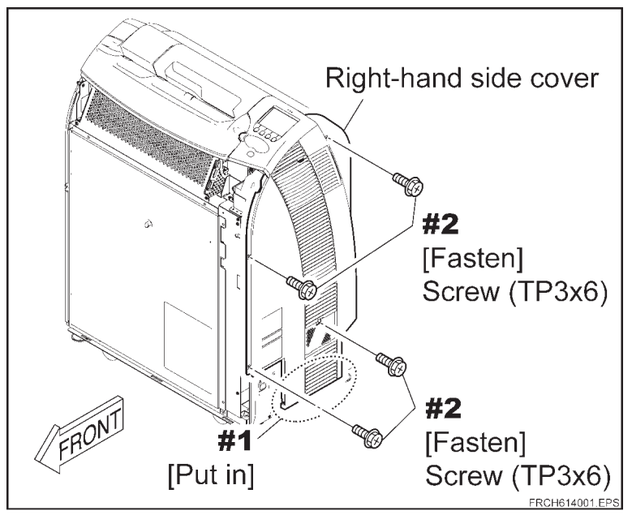


13. Cleaning/Reinstalling the Covers and Louvers

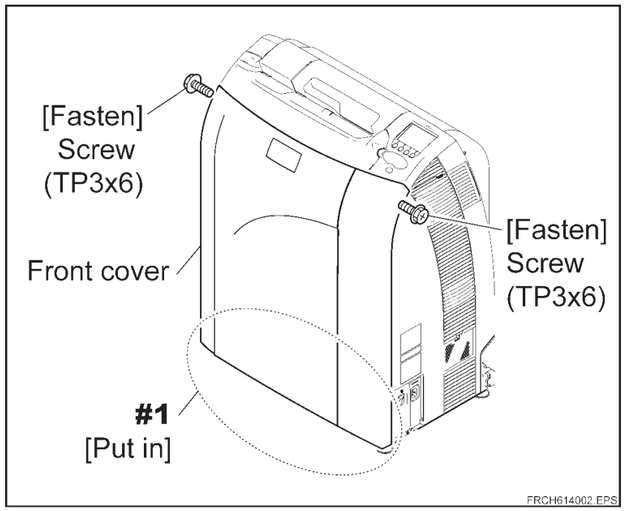
13.1 Cleaning/Reinstalling the Covers and Louvers (1st/5th Year)

1. **Clean the covers and louvers.**

2. **Put the lower part of the right-hand side cover into the housing to install. Retain it with the screws while holding the cover.**



3. **Put the lower part of the front cover into the housing to install. Retain it with the screws while holding the cover.**



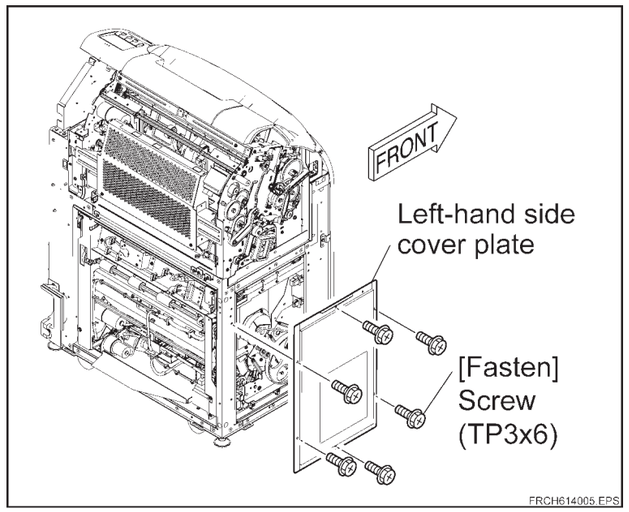
13.2 Cleaning/Reinstalling the Covers and Louvers (2nd/4th/6th Year)

⚠ CAUTION

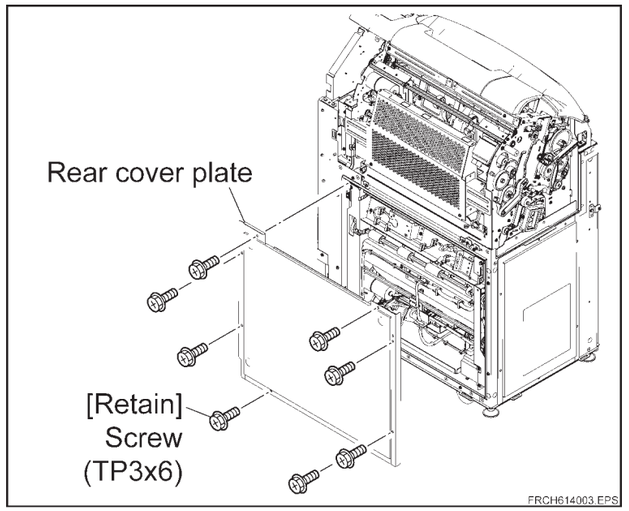
Check to make sure that the high-voltage switch is ON before reinstalling the cover.

1. **Clean the covers and louvers.**

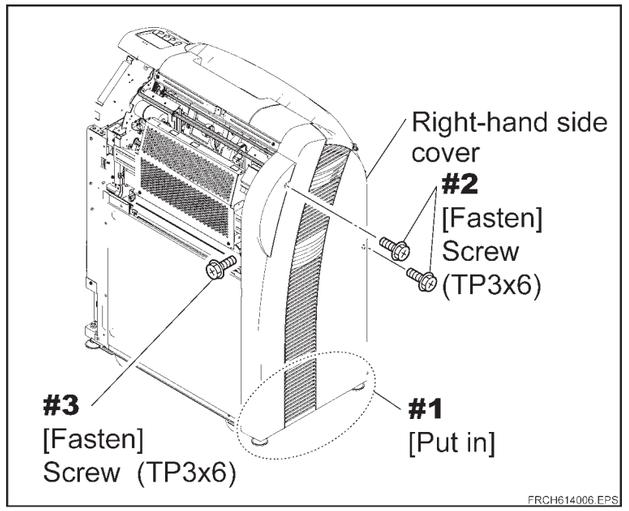
2. **Reinstall the left-hand side cover plate.**



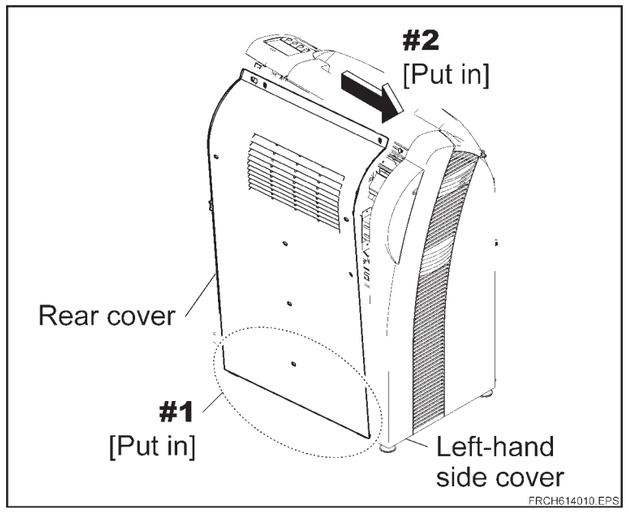
3. **Reinstall the rear cover plate.**



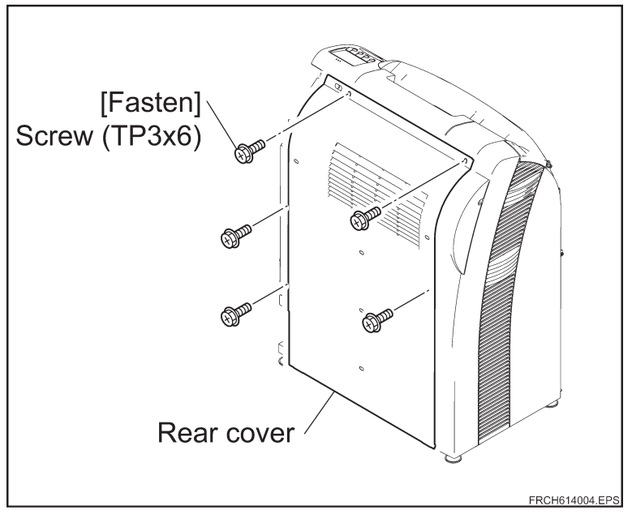
4. **Put the lower part of the left-hand side cover into the housing to install. Retain it with the screws while holding the cover.**



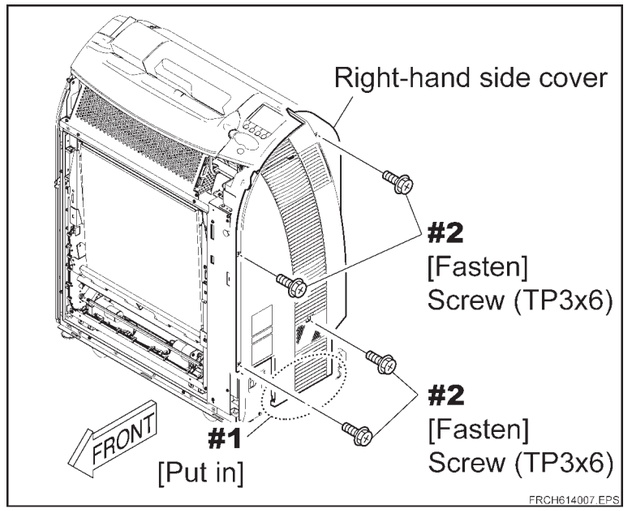
5. **Put the lower part of the rear cover into the housing to install. Put in the right-hand side below the left-hand side cover, and reinstall the rear cover.**



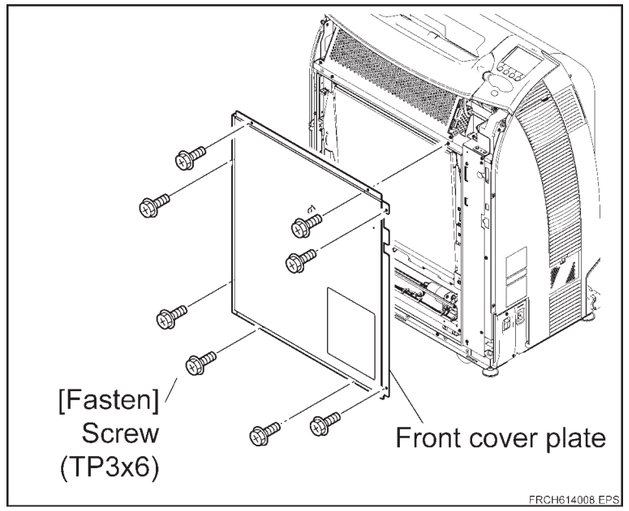
6. **Retain the rear cover with the screws while holding it.**



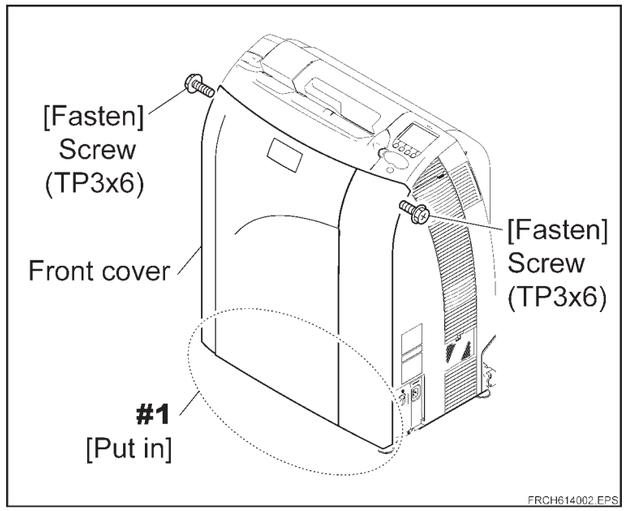
7. **Put the lower part of the right-hand side cover into the housing to install. Retain it with the screws while holding the cover.**



8. **Reinstall the front cover plate.**



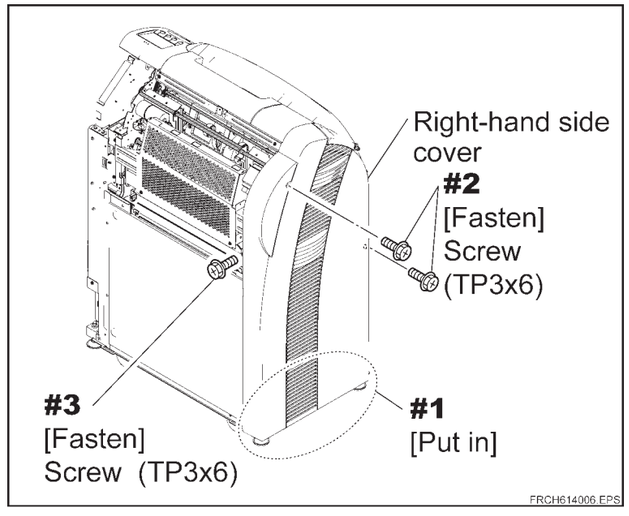
9. **Put the lower part of the front cover into the housing to install. Retain it with the screws while holding the cover.**



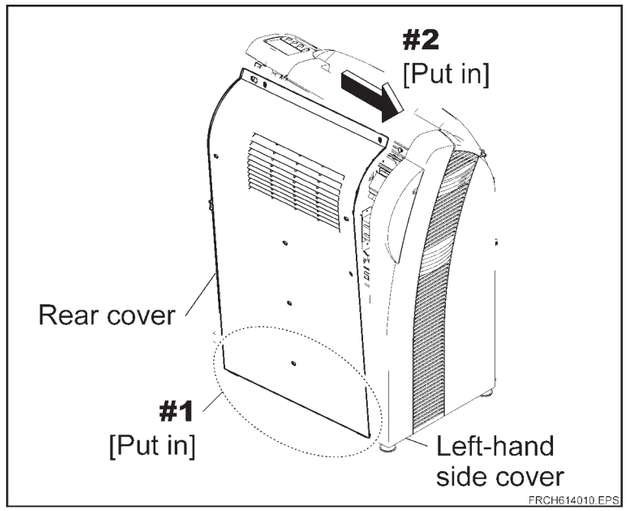
13.3 Cleaning/Reinstalling the Covers and Louvers (3rd Year)

1. **Clean the covers and louvers.**

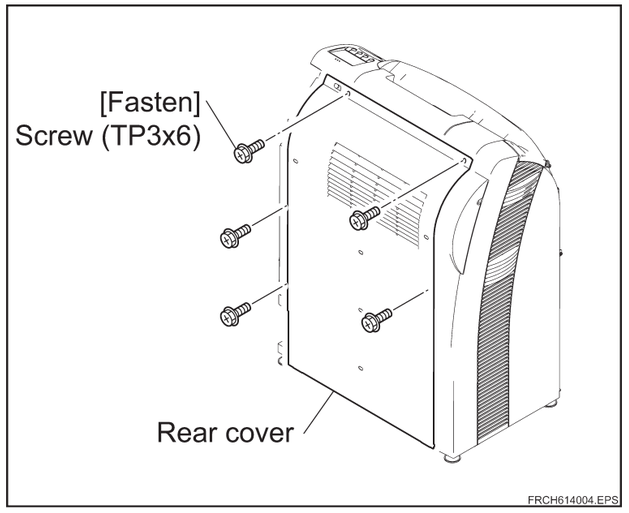
2. **Put the lower part of the left-hand side cover into the housing to install. Retain it with the screws while holding the cover.**



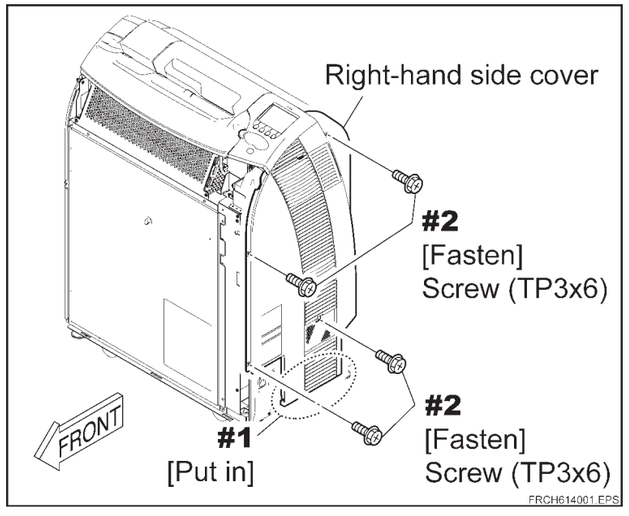
3. **Put the lower part of the rear cover into the housing to install. Put in the right-hand side below the left-hand side cover, and reinstall the rear cover.**



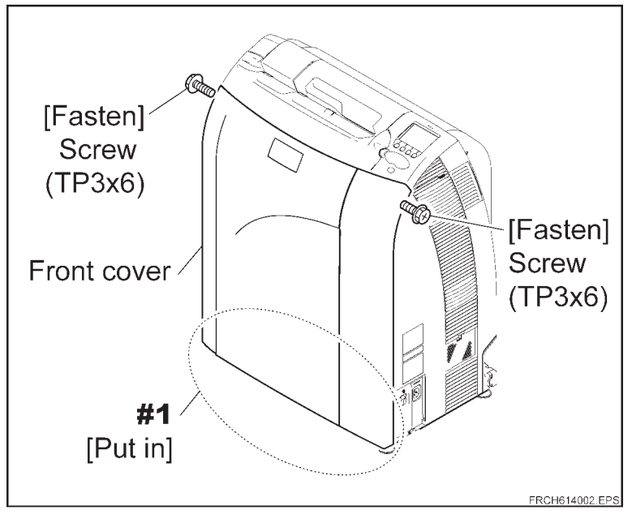
4. **Retain the rear cover with the screws while holding it.**



5. **Put the lower part of the right-hand side cover into the housing to install. Retain it with the screws while holding the cover.**

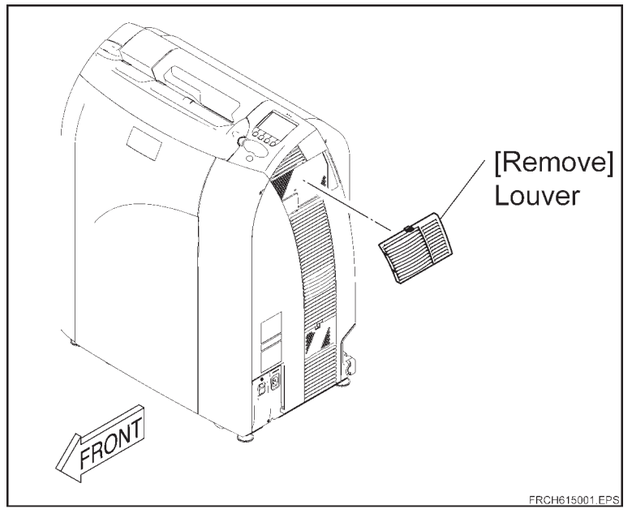


6. **Put the lower part of the front cover into the housing to install. Retain it with the screws while holding the cover.**



14. Cleaning/Replacing the Air Filter

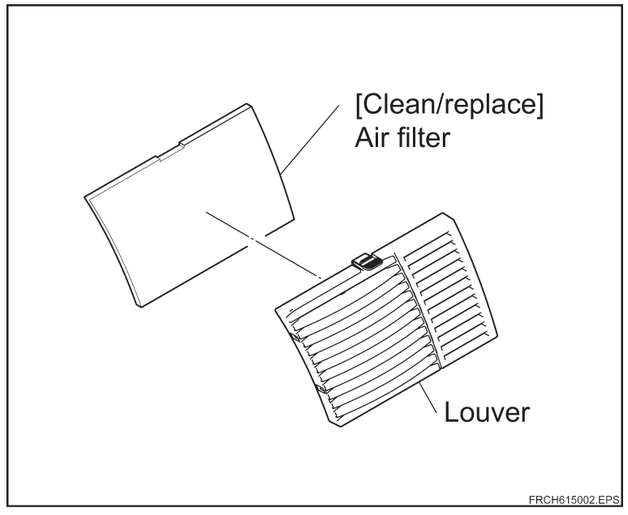
1. **Remove the louver.**



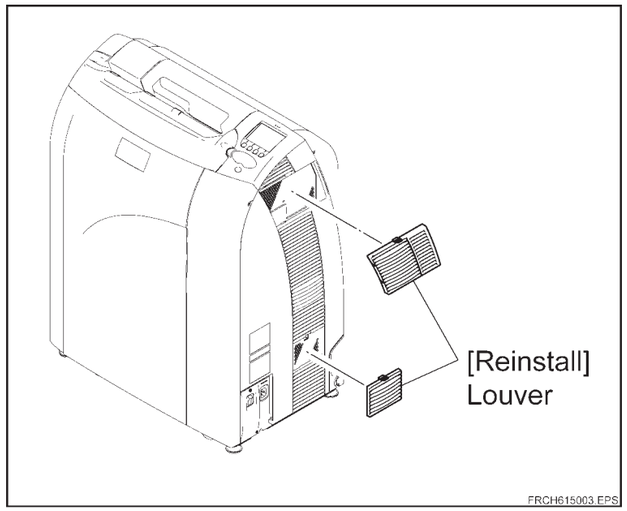
2. **When the machine has been used for one year, three years, or five years, clean the air filter. When the machine has been used for two years, four years, or six years, replace the air filter.**

◇ *REFERENCE* ◇

The air filter should be cleaned every three months by the user.



3. **Reinstall the louver.**



15. Securing the Machine

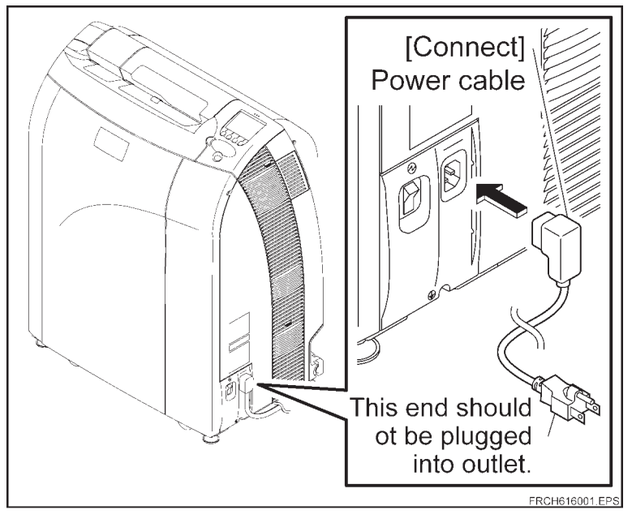
15.1 Connecting the Cables

⚠ WARNINGS

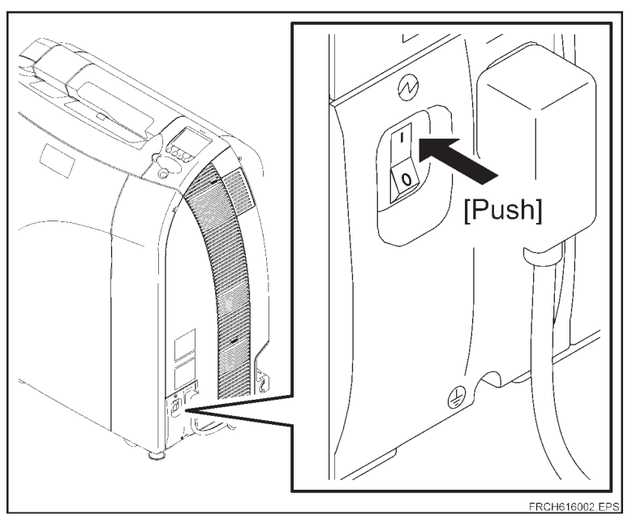
- *Before measuring the resistance value, make sure that the power plug is unplugged from the outlet.*
- *If the machine is to be installed in the patient environment, see "Appendix 1_ADDITIONAL PROTECTIVE GROUNDING"*

☞ *{IN: Appendix 1_ADDITIONAL PROTECTIVE GROUNDING}*

1. **Connect the power cable to the machine.**



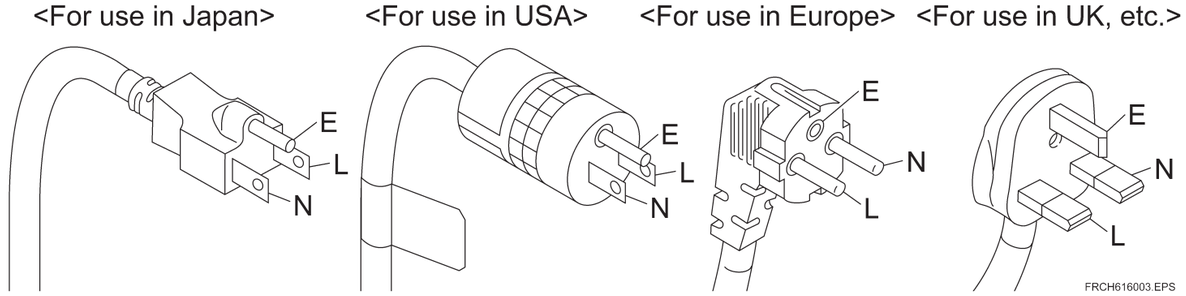
2. **Place the breaker switch in the ON position.**



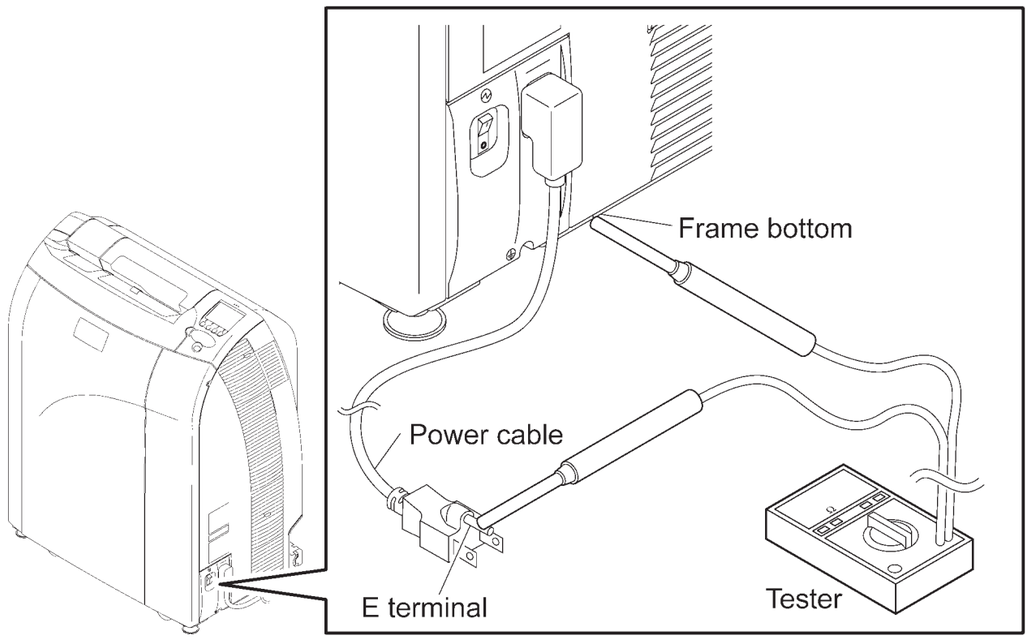
3. **Measure the resistance value of the power cable.**

(Reference value)

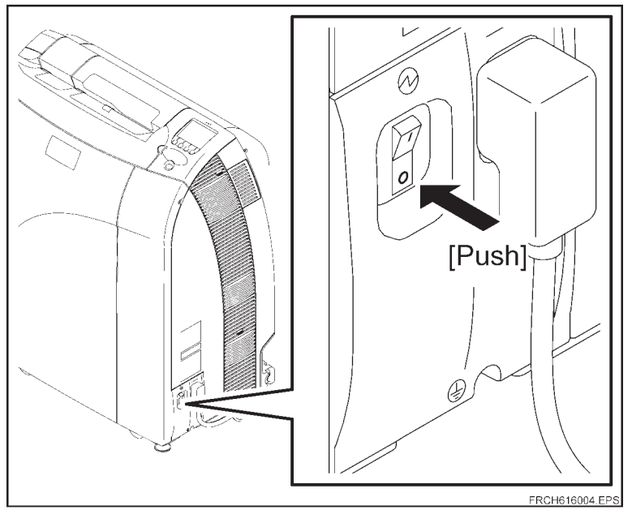
Terminal	L - N	L - E	N - E
Resistance value	100kΩ -	∞	∞



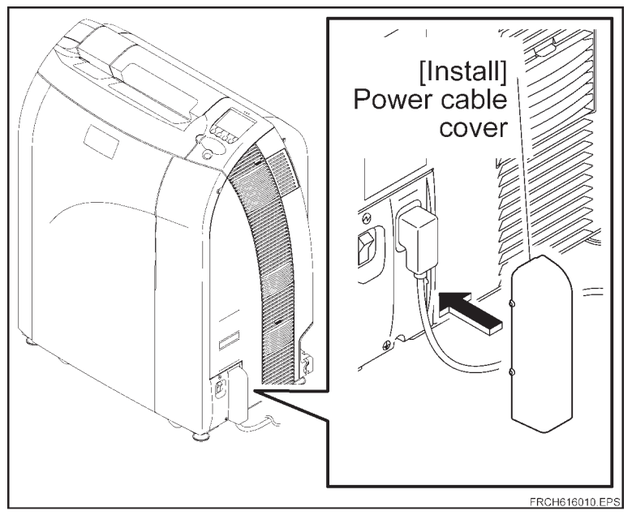
4. **Measure the resistance value between the E terminal of the power cable and the bottom of the machine frame, and make sure that there is continuity.**



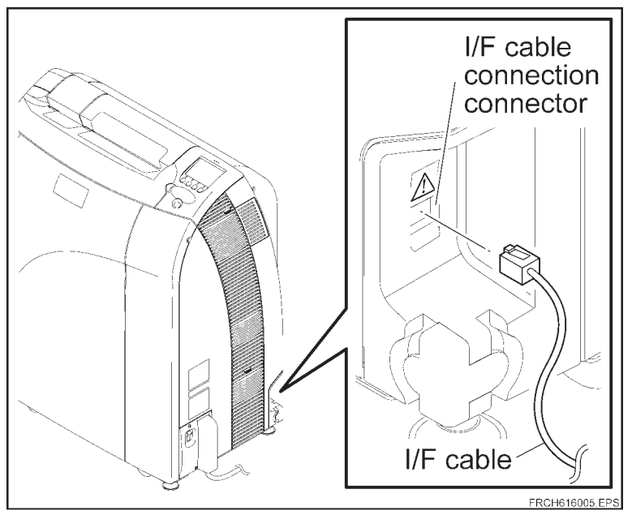
5. **Place the breaker switch in the OFF position.**



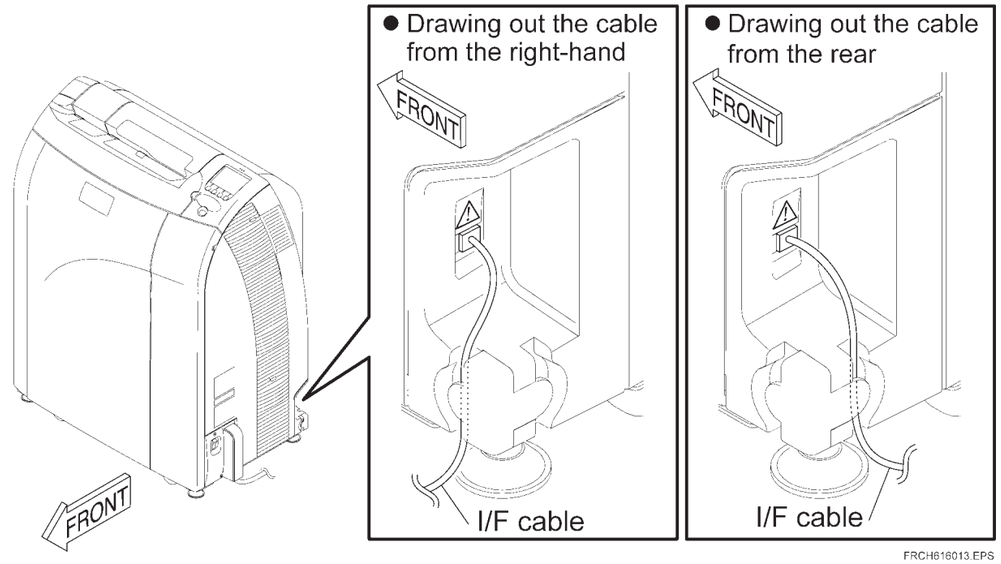
6. **Install the the power cable cover.**



7. **Connect the I/F cable to the I/F cable connection connector.**



8. **Check the installation conditions of the machine, cable wiring locations and so on. When the I/F cable is to be drawn out from the right-hand side of the machine, pass the cable through the right-hand slot, and when it is to be drawn out from the rear of the machine, pass it through the rear slot.**

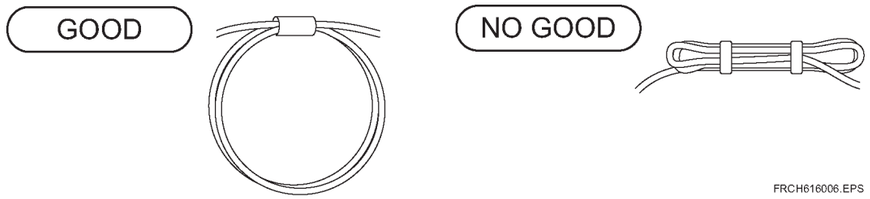


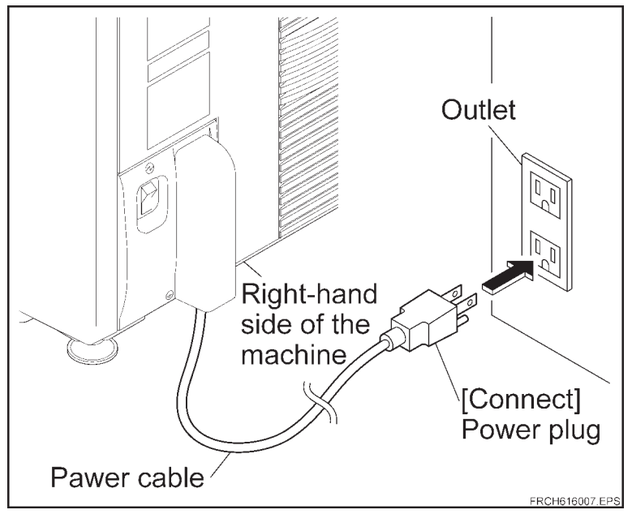
9. **Move the machine to the installation space.**

10. **Connect the power cable to the outlet.**

⚠ *CAUTION*

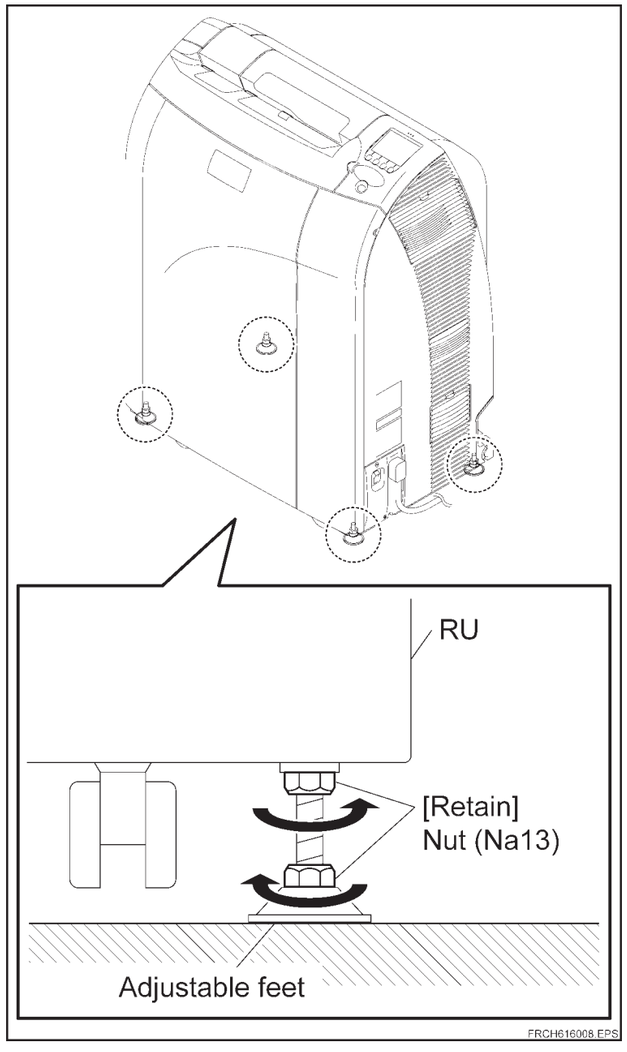
Do not tie or bundle the power cable in such a manner that it is overloaded.





15.2 Securing the Machine

1. **Lower the adjustable feet to settle the machine.**



15.3 Checking for Improper Protective Grounding

1. **Check that the power cable and additional protective ground wire connections are established in the same manner as for installation.**

◇ *REFERENCE* ◇

Check the additional protecting ground wire only when the machine is installed in the patient environment.

2. **Check that the parts and cables removed for servicing purposes are connected in the same manner as for installation.**

3. **Check to ensure that the screws once removed are snugly retained.**

16. Checking the Image/Conveyance

1. **Check the image/conveyance.**

☞ **{PM:3_Checking the Image/Conveyance}**

17. Confirming the S Value

The procedure set forth below is used to read an IP, which has been exposed to 1 mR of radiation, during a 1-minute period between 10 and 11 minutes after an X-ray exposure, output the read image, and check that the S value for 1 mR of radiation, which is determined from the displayed S value and average dose value, is within the control limits.

◇ *REFERENCE* ◇

The method for calculating the S value control limits is outlined below:

- S value control limits for user adjustments

Upper limit: 200 x 1.5 = 300

Lower limit: 200/1.5 = 133

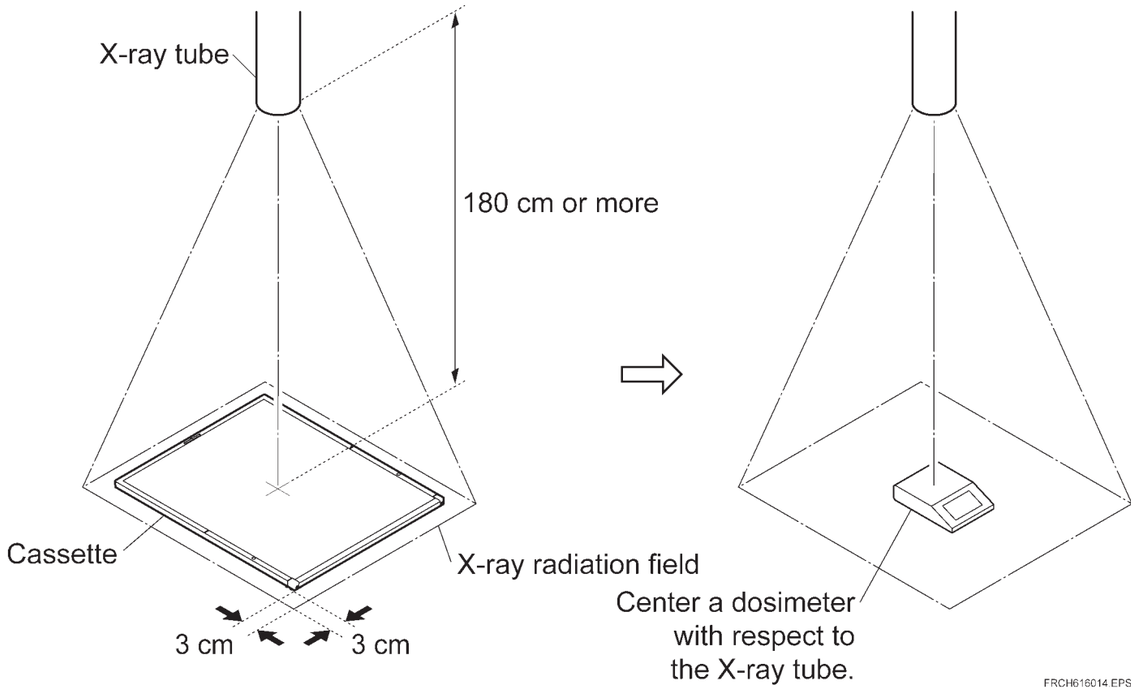
- S value control limits for service technician adjustments

Upper limit: 200 x 1.3 = 260

Lower limit: 200/1.3 = 154

To eliminate the necessity for adjusting the machine within a short period of time after service technician inspection/adjustment, the S value control range for service technician adjustments is narrower than that for user adjustments.

1. **Position a cassette so that the cassette center coincides with the X-ray radiation field center. Perform setup so that the X-ray radiation field outline is approximately 3 cm outside the cassette outer frame. Temporarily remove the cassette and then position a dosimeter at the radiation field center.**



2. **Set the tube voltage to 80 kVp. Confirm the exposure conditions under which the radiation dose is 1 mR.**

◆ ***NOTE*** ◆

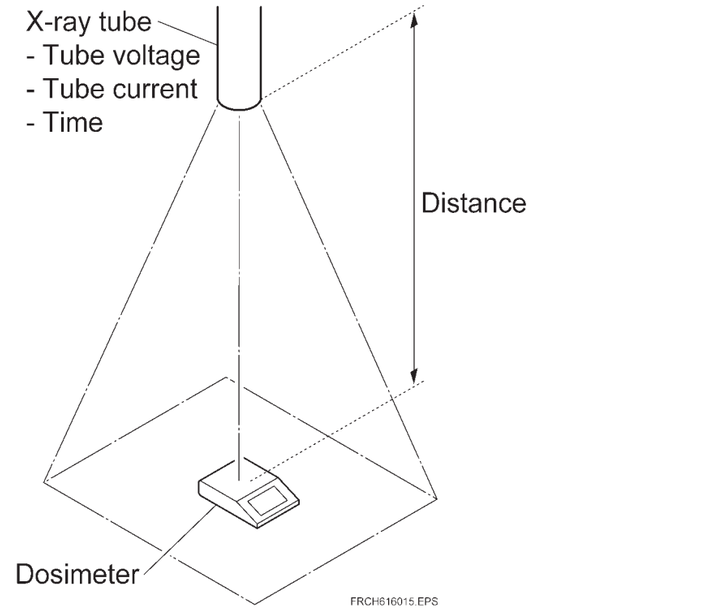
If the radiation dose measured by the dosimeter is not 1 mR, leave the tube voltage at 80 kVp and adjust the distance, tube current, and time to obtain a radiation dose of 1 mR. Record the adjusted exposure conditions.

- Distance: ___cm
- Tube voltage: ___kVp
- Tube current: ___mA
- Time: ___sec

◇ *REFERENCE* ◇

If the exposure conditions are unknown, use the following values as the reference values and make fine adjustments:

- Distance: 180 cm
- Tube voltage: 80 kVp
- Tube current: 50 mA
- Time: 0.013 sec



3. **Under the exposure conditions confirmed in step 2, measure the radiation dose five times and average the measured values.**

--- Example ---

First measurement	Second measurement	Third measurement	Fourth measurement	Fifth measurement	Average value
0.9	1.0	1.1	1.2	1.0	1.04

4. **Enter the exposure conditions and the average radiation dose determined in step 3 in the "FCR S Value Control Table."**

5. **Subject the natural radiation and image stored on the employed IP to secondary erasure.**

☞ **{Instruction Manual}**

◆ ***NOTE*** ◆

Before secondary erasure, confirm that no important image data is recorded on the employed IP.

6. **Under the exposure conditions confirmed in step 2, expose a 14" x 14" (35 cm x 35 cm) or 14" x 17" (35 cm x 43 cm) IP to X-ray radiation.**

◆ ***NOTE*** ◆

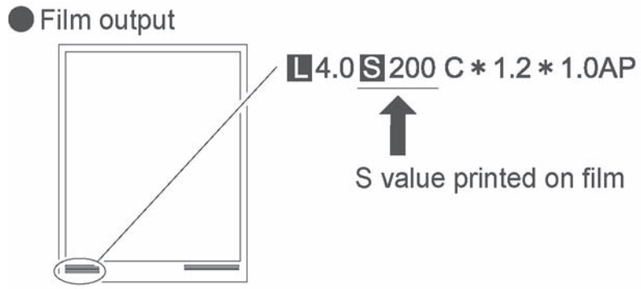
Use the largest size IP of all the IPs used at the institution.

7. **Read the IP exposed in step 6 during a 1-minute period between 10 and 11 minutes after the exposure by using the "QC/TEST," "Image Format" or "Image Format - 2," and "SINGLE" CR Console menus, and then output the read image.**

8. **Determine the "S value for 1 mR of radiation" from the displayed S value (the S value printed on the film or displayed on the CR Console screen) and the average radiation dose value obtained in step 3.**

--- Example ---
Displayed S value: 200
Average radiation dose value obtained in step 3: 1.04

● Film output



● CR Console screen

S value for 1 mR of radiation = Displayed S value x average radiation dose value
= 200 x 1.04
= 208

9. **Check that the "S value for 1 mR of radiation," which was determined in step 8, is within the control limits.**

--- Example ---

Lower control limit value < 208 < Upper control limit value
154 < 208 < 260

Check that the "S value for 1 mR of radiation," which was determined in step 8, is between the upper and lower control limit values.

◆ ***NOTE*** ◆

If the "S value for 1 mR of radiation," which was determined in step 8, is not between the upper and lower control limit values, make sensitivity correction as directed in "15.3 Sensitivity Correction" and then confirm the S value again.

☞ ***{MC:15.3_Sensitivity Correction}***

18. Checking the Error Log

1. Check the error log.
   ☞ {PM:2.2_Checking the Error Log}
2. Close the RU PC-TOOL window.
3. Turn OFF the power of RU.
4. Turn OFF the power of CR Console.

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